

# NORWICH SCIENCE FESTIVAL

18-26 OCTOBER 2019



Brought to you by:

the  
**forum**

Sponsored by:

love every drop  
anglianwater



Hands-on fun

Inspiring talks

Science on show

Cutting-edge research

Intriguing discoveries



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## WELCOME

### Welcome to the fourth Norwich Science Festival!

The Festival is made possible thanks to The Forum who organises and acts as host venue, with support from our partner organisations, venues and sponsors. We are very grateful for their support.

Spark your curiosity at Norwich Science Festival with exciting experiments and hands-on workshops, groundbreaking research from our local scientists and inspiring talks from leading scientists and innovators.

This year, thanks to your feedback, we've organised the brochure by date, to make it easier for you to find events when you're available.

## THE EXPLORIUM!

During the Festival, The Forum's Atrium and our brand new marquee will be transformed into The Explorium – a place for all to explore the world through science. Drop in 10am–4pm (19–26 October) for free, hands-on science fun for all ages!

## FAMILY EVENTS

We've tons of great family-friendly shows, talks and workshops across the nine days – look out for the family event logo.

We hope you enjoy the Festival!

### Join the conversation

- # NorwichSciFest
- NorwichSciFest
- Norwich Science Festival
- norwichsciencefestival

Brought to you by:



## PATRONS

### We're delighted to welcome our newest patron to this year's Festival – TV presenter and wildlife biologist Lizzie Daly!

From filming with penguins to conservation work with elephants, Lizzie has a fierce

passion for caring for our oceans and protecting our wild spaces. Lizzie has worked as a presenter on *Blue Planet Live Lessons*, *CBeebies*, *CBBC*, *National Geographic*, *BBC Two*, *Animal Planet* and is a host on the *BBC Earth Unplugged* YouTube channel.

Lizzie joins our existing patrons: author, broadcaster and astronomer **Mark Thompson**, and evolutionary biologist and broadcaster **Professor Ben Garrod**.



“It is a real honour to become a patron of Norwich Science Festival, which is full to the brim with exciting science experiments, shows, new discoveries and opportunities to explore. This will be my third year at NSF and I always look forward to seeing how it engages the younger generation by celebrating the wonder of the natural world around them. I really can't wait for this year's Festival!”

Lizzie Daly



## BOOKING INFORMATION

Many events are bookable and have limited capacity, so early booking is advised.

Most events can be booked via [norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk) but some events are booked through our partners – please check each event listing for booking information.

Many exhibitions, events and activities at Norwich Science Festival are FREE. The Forum and our partners have kept prices for paid events as low as possible. Ticket income is used to cover the costs of bringing high-profile shows and speakers to Norwich and to fund free Festival events.

Please bring your printed ticket or an email confirming your booking to the event. We do not offer refunds unless

a performance is cancelled or postponed. For sold out events, we may be able to resell your ticket, but this is not guaranteed.

Any audience member requiring a Personal Assistant in order to attend a Festival event can receive one free ticket for their registered carer – please contact [science@theforumnorwich.co.uk](mailto:science@theforumnorwich.co.uk) after you have booked your original ticket to arrange. Proof of eligibility may be required.

### Age Recommendations:

We include an approximate age recommendation as a guide to help you choose your events. Everyone is welcome

to all of the listed events (unless specified as adults only), but some will be more suited to the ages suggested, due to content or language. Children under 12 must be accompanied in talks and workshops by a responsible adult.

### Photography:

Please note that photography/filming will take place during Festival events – please notify a Festival event team member if you do not wish to be included.

All events are subject to change but are correct at time of printing – for up-to-date listings please see [norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)



Photo: Alex Rivest

## REASONS FOR HOPE WITH DR JANE GOODALL DBE

Founder of the Jane Goodall Institute & UN Messenger of Peace

In conversation with Professor Ben Garrod

**THU 24 OCT**  
7pm–8.15pm (doors 6.15pm,  
unreserved seating)

Renowned ethologist and conservationist Dr Jane Goodall has dedicated her life to studying chimpanzees. In 1960, aged 26, Jane arrived in Gombe in western Tanzania to begin her research into the wild chimpanzees, equipped with nothing more than a notebook and pair of binoculars. Living in Gombe, Jane made hugely important observations and discoveries – that chimpanzees were actually meat-eaters and that they created and used tools, which up until that time, only humans were thought to do.

In this special event, Jane will be in conversation with Festival patron Prof Ben Garrod – discussing her work and the core programmes of the Jane Goodall Institute (JGI), the future of conservation and how our actions make a

difference every single day. Through her global humanitarian and conservation programme Roots & Shoots, young people of all ages are empowered to undertake hands-on programmes for their community, animals and the environment we all share. Plus booksigning.

For more information about the JGI visit  
and

**VENUE:** Norwich Cathedral  
**COST:** £22, £18 concessions  
**AGE:** 7+  
**BOOK:** [norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)



Photo: Courtesy of the Jane Goodall Institute



## WHAT MAKES US HAPPY? READING THE HUMAN MIND WITH PROF ROBERT WINSTON

**WED 23 OCT**  
6.30pm–8pm

Supported by The Assembly House Trust



THE ASSEMBLY HOUSE

Can we ever really understand what makes us happy? Professor Winston examines the role of brain imaging, hormone study, sexuality, child development, pharmacology and psychological research in understanding how science may help us be happier. Happy people tend to live longer, and recent research suggests we tend to get happier as we get older. Is this simply because we become more forgetful? Can we make ourselves happier and if so, will knowledge of brain function and how we might manipulate it give us more fulfilled lives? Plus Q&A and booksigning.

**VENUE:** The Assembly House  
**COST:** £12  
**AGE:** 12+  
**BOOK:** [norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)

VISIT [NORWICHSCIENCEFESTIVAL.CO.UK](http://NORWICHSCIENCEFESTIVAL.CO.UK)



Photo: Owen Vincent

## MADDIE'S FANTASTIC FACTORY TOUR! WITH MADDIE MOATE



**MON 21 OCT**  
11am–12pm, 2pm–3pm

Welcome one and all, Maddie is opening the doors to her fantastic factory for the very first time! Maddie is always busy exploring factories on telly and YouTube but now she's inviting you all to join her own tour and marvel at the machines inside! Come along and find out how some of her favourite things are made live on stage, with a little help from her special cameras. Maddie is a YouTube filmmaker and BAFTA winning presenter, and host of CBeebies series *Do You Know?*, BBC Earth's *Earth Unplugged* and CNBC's technology series *The Cloud Challenge*.

**VENUE:** Norwich Playhouse  
**COST:** £8.50  
**AGE:** 4+  
**BOOK:** [norwichplayhouse.co.uk](http://norwichplayhouse.co.uk) / 01603 598598





## THE FUTURE OF HUMAN SPACEFLIGHT THE MOON, MARS AND BEYOND

**FRI 25 OCT**  
5pm–6pm

As we mark the 50th anniversary of the Apollo 11 moon landing, developments in space travel are evolving fast. But what does the future hold for human spaceflight? What are the risks? And will commercial space travel become a reality within our lifetime? Join space journalist and broadcaster, Richard Hollingham, as he talks to Vinita Marwaha (European Space Agency Space Operations Engineer), Sue Nelson (science journalist and broadcaster), Beth Healey (medical doctor and researcher for ESA) and Christopher Ogunlesi (researcher at University of Southampton, formerly at ESA) about the revolutionary 21st century space race.

**VENUE:** The Forum, Auditorium  
**COST:** £6  
**AGE:** 12+  
**BOOK:** [norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)

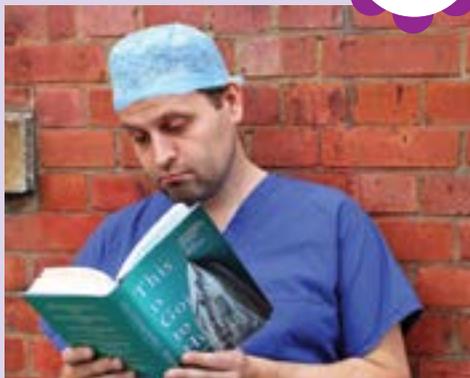
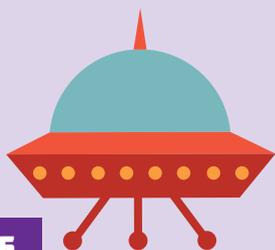


Photo: Marinovic and Noble Photo Agency

## FANE PRODUCTIONS PRESENTS THIS IS GOING TO HURT WITH DR ADAM KAY

**WED 23 OCT**  
8pm–9pm

*This Is Going to Hurt* is the hilarious, at times horrifying, and occasionally heartbreaking, diary of a former junior doctor turned comedian. After working 97 hour weeks, making life or death decisions in a hospital, Dr Kay decided to hang up his stethoscope and share his collection of scribbled diaries. The book was an instant *Sunday Times* number one bestseller, awarded Book of the Year 2019 at the National Book Awards and has sold more than a million copies in the UK. In recounting what he went through, Kay opens our eyes to life on a hospital ward in an electrifying evening of stand-up. Plus Q&A and booksigning.

**VENUE:** Norwich Playhouse  
**COST:** £15  
**AGE:** 16+  
**BOOK:** [norwichplayhouse.co.uk](http://norwichplayhouse.co.uk) / 01603 598598

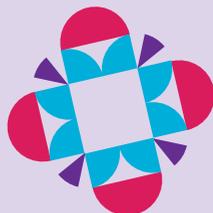


Photo: Stefan Oboski

## THE BOOK OF HUMANS WITH DR ADAM RUTHERFORD

**TUE 22 OCT**  
8pm–9.30pm, inc. interval

We like to think of ourselves as exceptional beings, but are we really any more special than other animals? In an original and entertaining tour of life on Earth, Dr Adam Rutherford will explore how many of the things once considered to be exclusively human are not: we are not the only species that communicates, makes tools, utilises fire, or has sex for reasons other than to make new versions of ourselves. Evolution has, however, allowed us to develop our culture to a level of complexity that outstrips any other observed in nature. Plus booksigning.

**VENUE:** Norwich Playhouse  
**COST:** £14, £12 concessions  
**AGE:** 15+  
**BOOK:** [norwichplayhouse.co.uk](http://norwichplayhouse.co.uk)  
/ 01603 598598



Photo: Chris Vaughan

Photo: Jessica Daly

## X-RATED NATURE II WITH DR ADAM RUTHERFORD, LUCY COOKE, PROF BEN GARROD & LIZZIE DALY

**MON 21 OCT**  
8.30pm–10.30pm

It's back! Following the success of 2017's X-rated event, get ready for more weird and wonderful facts about the natural world. The hosts – NSF patrons Lizzie Daly and Prof Ben Garrod, joined by Dr Adam Rutherford and Lucy Cooke – share some bizarre animal sex tales, from hermaphroditic sea slug love chains, to most snakes having two penises. Plus, can you spot the fake facts thrown in as curveballs? Expect plenty of adult content!

**VENUE:** The Forum, Gallery  
**COST:** £8  
**AGE:** 16+  
**BOOK:** [norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)





FAMILY EVENT

## THE SCIENCE OF FOOD WITH DR MARTY JOPSON

**SAT 19 OCT**  
1pm–2pm,  
2.30pm–3.30pm (BSL)

In this mouth-watering tour of your twenty-first century kitchen, BBC1 *One Show* resident scientist, writer and all-round Science Bloke Dr Marty Jopson addresses conundrums such as: Why is bamboo bad for knives? How and why do you process cheese? What's the science of stuffing olives? Why don't people like sprouts? And why will the yuck factor be part of the future of our food? Expect demos, audience participation and microscopes! The book that accompanies this talk lays bare food science from lab-grown beefburgers to the five-second rule, and from chocoholism to breakfast cereal.

BSL interpretation in 2.30pm show. Plus book signing.

**VENUE:** The Forum, Auditorium  
**COST:** £5  
**AGE:** 7+  
**BOOK:**  
[norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)



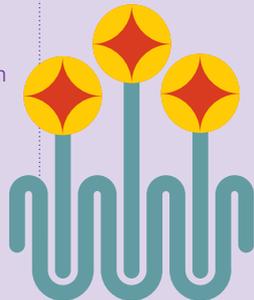
FAMILY EVENT

## THE HORRIBLE SCIENCE SHOW WITH NICK ARNOLD

**THU 24 OCT**  
11am–12pm, 2pm–3pm

This interactive comedy show brings the multi-award-winning *Horrible Science* series to life using experiments, games and quizzes, and shows how science is exciting in an amusing and gruesome fashion. Author Nick Arnold has performed the show with great success all over the UK, Europe, China and the Middle East. Plus book signing.

**VENUE:** Norwich Playhouse  
**COST:** £8.50  
**AGE:** 5+  
**BOOK:** [norwichplayhouse.co.uk](http://norwichplayhouse.co.uk) / 01603 598598



FAMILY EVENT

Photo: Adrian White Photography

## ANIMAL TOP TRUMPS WITH LIZZIE DALY & PROF BEN GARROD

**TUE 22 OCT**  
4pm–5pm

Are you team 'extant' or team 'extinct'? Team 'living' or team 'dead'? Would a rhino win a fight with a T. rex? Which was the weirdest animal ever? BBC *Earth Unplugged's* Lizzie Daly and TV biologist Prof Ben Garrod go head-to-head in a bid to claim their team as the winners of the animal kingdom. Compare skeletons, teeth, behaviours and lifestyles in this energetic battle between modern-day animals and dinosaurs.

**VENUE:** Norwich Castle,  
Lecture Theatre  
**COST:** £5  
**AGE:** 5+  
**BOOK:**  
[norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)



Photo: Royal Society of Chemistry

## HIDDEN ELEMENTS

**SAT 5-SAT 26 OCT**

Supported by:



The hunt is on! In celebration of the International Year of the Periodic Table, 20 element info boards will be placed around the city. It's 150 years since the Russian scientist, Dmitri Mendeleev, arranged all of the then known elements into a table. Can you track down the elements in our periodic table trail? Pick up a map from The Forum, discover all the element displays, complete the trail, and collect a certificate at the Festival between 18–26 October. Plus, come and see the giant periodic table in The Forum!

**VENUE:** Around the city  
**COST:** Free, drop-in  
**AGE:** All ages



VISIT [NORWICHSCIENCEFESTIVAL.CO.UK](http://NORWICHSCIENCEFESTIVAL.CO.UK)



## HOW WILL ARTIFICIAL INTELLIGENCE CHANGE YOUR LIFE?

**SAT 19-SAT 26 OCT**

AI is now part of our everyday lives. But do you know when you're using AI? Will it make our lives better, or worse? Join Samsung to learn more about AI, get hands-on with the latest tech and have your say in the UK's biggest AI conversation.

**VENUE:** The Forum's Explorium  
**COST:** Free, drop-in  
**AGE:** 12+

## SAMSUNG

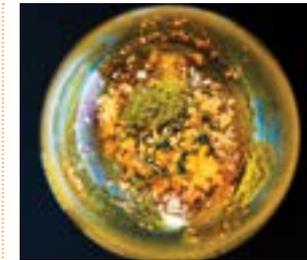


Photo: Thomas Louveau/John Innes Centre

## ENGAGING IMAGES

**SAT 19-SAT 26 OCT**

An exhibition of beautiful and inspiring scientific photographs that tell the story of the groundbreaking research being carried out across the Norwich Research Park. You can 'meet the scientists' on 22 October in The Forum (see p33), where you'll hear about the latest discoveries and research behind the images on show.

### COMPETITION

Get inspired by these stunning scientific images and produce some creative art. Winners will be exhibited later in the year.

[norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)

**VENUE:** The Forum, Explorium  
**COST:** Free, drop-in  
**AGE:** All ages





**WONDROUS FORMS OF LIFE**

SAT 19-SAT 26 OCT

Discover the wonder of animals in this stunning exhibition by author and illustrator Tim Pond. Tim's exquisite drawings and paintings detail the animal kingdom, from amphibians and reptiles, through to birds, and the power of big cats and blue whales. Tim's artwork spans a wide range of media, though he is particularly recognised for his dip pen and ink work, which has appeared in *The Guardian*. Sketching from nature has taken Tim from being an expedition artist in Alaska, to sketching leaves in a tropical forest in Mexico. His new book, *The Field Guide To Drawing & Sketching Animals*, shows you how to observe and draw animals from real life. Plus, take part in a drawing workshop with Tim – see p19.

**VENUE:** Millennium Library, Ground Floor  
**COST:** Free, drop-in  
**AGE:** All ages



**ART OF THE GUT**

SAT 19-SAT 26 OCT

Supported by



**Norfolk** County Council

Art and science meet in an exhibition exploring new research into microbes, food and health, created by Jennie Pedley – artist in residence at the Quadram Institute. Jennie worked with scientists, with d/Deaf and hearing children at Colman School and families at St Williams Way Library, supported by the SAW Trust.

**VENUE:** The Forum  
**COST:** Free, drop-in  
**AGE:** All ages



**ANGLIAN WATER FILM BOOTH**

SAT 19-SAT 26 OCT

Pull up a chair in the Anglian Water film booth to discover why we all need to 'Love Every Drop' of water. This rolling programme of films looks at diverse issues facing the future of water in our region, such as climate change and water scarcity, protecting the wetland landscape and biodiversity, the problem with flushable wipes and fatbergs in our sewers, and how Anglian Water is using new technology to find leaks.

**VENUE:** The Forum's Explorium  
**COST:** Free, drop-in  
**AGE:** All ages



**PLANETARIUM: SPACE EXPLORATION**

THU 24-SAT 26 OCT

Various times, see website

Sponsored by



Step inside the amazing Science Dome for an incredible 40-minute show about space exploration and how people have investigated and come to understand the Universe beyond the Earth. This year also marks the 50th anniversary of the first human landings on the Moon, so come along and share in the adventure with a 360 degree immersive experience inside a specially-designed inflatable dome.

**VENUE:** intu Chapelfield  
**COST:** Free, booking advised  
**AGE:** All ages  
**BOOK:** Join the intu Chapelfield Family Club to hear when booking opens  
[intu.co.uk/chapelfield](http://intu.co.uk/chapelfield)



**MARVELLOUS MACHINES**

TUE 22-SAT 26 OCT

10am–4.30pm

Follow the trail through the museum to discover machines made to knit wire, weave wool, and put soft centres in chocolates. On Tuesday 22 October, see the amazing restored Jacquard loom in action.

**VENUE:** Museum of Norwich at The Bridewell  
**COST:** Standard museum admission prices  
**AGE:** 7+  
**INFO:** [museums.norfolk.gov.uk](http://museums.norfolk.gov.uk)



**CREATURES OF THE NIGHT**



MON 21-FRI 25 OCT  
 12pm–12.45pm, 1.30pm–2.15pm, 3pm–3.45pm

See the Natural History Gallery in a new light with torch-lit tours in the dark! From glass eyes to a man-eating crocodile, hammerhead sharks to Norfolk hippos – explore the wonder of animals, consider how creepy crawlies benefit our eco-systems and uncover some of the more unusual stories in our collection.

**VENUE:** Norwich Castle Museum and Art Gallery

**COST:** Standard museum admission prices

**AGE:** 5+

**BOOK:** On day at Norwich Castle



**SCIENCE OF BATH BOMBS**

MON 21, TUE 22, WED 23 OCT  
 4pm–5pm

Come to Lush to learn about our amazing plastic packaging free products, and the science behind why bath bombs fizz. Get hands-on with some interactive demonstrations, learn about the ingredients we use and help make a bath bomb you can take home with you!

**VENUE:** Lush, intu Chapelfield

**COST:** £6

**AGE:** 8+

**BOOK:**

[norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)



# SCIENCE AFTER SIX

**FRI 18 OCT**  
6pm-10pm

Join us for a strictly adults-only evening of science as the sun sets. Expect cocktails, music and hands-on science in The Forum's Explorium – at last, a chance for you to explore the fun of science, without the kids! Featuring scientific comedy from Simon Watt, songs in the key of science from Jonny Berliner, edible grubs and insects from Bug (Better Universal Grub), a spot of rap science with Jon Chase, an 'organ-off' battle of the organs, the journey of food, and much, much more!

**VENUE:** The Forum  
**COST:** £10  
**AGE:** 18+  
**BOOK:** [norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)

## NORWICH SCIENCE CAFE

### THE LIMITS TO GROWTH AND SCIENCE

**WED 16 OCT**  
7.30pm-10pm

Our world faces unprecedented ecological meltdown, our civilisation faces likely collapse. Join Dr Rupert Read from UEA in a Norwich Science Cafe that asks: what is the role of science in our current extreme crisis? And does that crisis expose its limits as well as its uses?

**VENUE:** Maddermarket Theatre bar  
**COST:** £4  
**AGE:** 15+  
**BOOK:** [norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)



# OUR FOOD, OUR FUTURE



## FOOD & HEALTH DAY

**SAT 19 OCT**  
10am-4pm

### THE EXPLORIUM!

Sponsored by

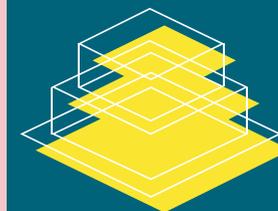


Explore the wonders of food and how what we eat impacts on our health. Learn how technology is helping us to keep fit and understand our bodies, with Fitness Space. Help squash food waste with Norwich Pumpkin Rescue and Norwich City Council – try free tasty pumpkin treats, see interactive shows from Mad Science and more. Explore the future of food and sample grubs and insects from BUG (Better Universal Grub). Watch a 'science of cookery' demo from chef Richard Bainbridge. With the John Innes Centre, discover how starch is present not just in potatoes but in lots of different materials – stop by for the iodine staining, stay for the Playdoh! Plus activities from Anglian Water, Greenpeace, UEA, the Quadram Institute and more.

**VENUE:** The Forum's Explorium  
**COST:** Free, drop-in  
**AGE:** All ages



VISIT [NORWICHSCIENCEFESTIVAL.CO.UK](http://NORWICHSCIENCEFESTIVAL.CO.UK)



## GALLERY STAGE

**SAT 19 OCT**

Head to the Gallery to hear free, drop-in talks on a wealth of food and health related topics: on taste and flavour, how plants can become medicines, and the problems with bingeing on sugary foods! First come, first served.

10.30am-11am

Nature's Factories: Making Modern Medicines in Plants

11.15am-11.45am

From Farm to Fork: How Big Data Puts Food on your Table

12pm-12.45pm

Food Glorious Food: A Sensory Story

1.30pm-2.30pm

Leukaemia: Liquid Cancer

3pm-4pm

Food and Mood

**VENUE:** The Forum's Gallery

**COST:** Free, drop-in

**INFO:**

[norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)





**KITCHEN SCIENCE WITH KIDDY COOK**



**SAT 19 OCT**  
10am–11am,  
11.45am–12.45pm,  
1.30pm–2.30pm,  
3.15pm–4.15pm

**WORK SHOP**

Join Kiddy Cook to try out some fun and simple experiments which can be done at home. The experiments use ingredients and equipment found in kitchen cupboards, with no elaborate or fancy science equipment.

**VENUE:** Sir Isaac Newton Sixth Form  
**COST:** £6 per child  
**AGE:** 5+  
**BOOK:** [norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)



**POO: WHAT COMES IN, MUST COME OUT**

**SAT 19 OCT**  
10.30am–11.15am,  
11.45am–12.30pm

**WORK SHOP**

If you've ever wondered how the body turns our food into waste, then this is the workshop for you! Join UEA anatomist Charlie James and follow the journey of food from mouth to south, learning all about the organs we meet along the way. How will we do this? By crafting your very own pool!

**VENUE:** Sir Isaac Newton Sixth Form  
**COST:** £2 per child  
**AGE:** 8–11  
**BOOK:** [store.uea.ac.uk](http://store.uea.ac.uk)



**GENE EATING: THE TRUTH ABOUT DIETS WITH DR GILES YEO**

**SAT 19 OCT**  
11am–12pm

Why are we all getting fatter? Why are some people hungrier than others? And why don't diets work? In an age of misinformation and pseudo-science, the world is getting fatter and the diet makers are getting richer. How do we break this cycle that's killing us all?

Drawing on the very latest science and his own genetic research at Cambridge University, Dr Giles Yeo (BBC2's *Trust Me I'm A Doctor*; *Horizon*) has written the seminal 'anti-diet' diet book – *Gene Eating: The Science of Obesity and the Truth about Diets*. In this talk, Giles will explore the history of our food, debunk marketing nonsense and toxic diet advice, and confront the advocates of 'clean eating'. Plus booksigning.

**VENUE:** The Forum, Auditorium  
**COST:** £6  
**AGE:** 12+  
**BOOK:** [norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)

**THE SCIENCE OF ROALD DAHL WITH JON CHASE**



**SAT 19 OCT**  
11am–12pm



If you've ever wondered what's needed to get James' peach to fly, whether George is a genius scientist and how topsy turvy the Twits could really be, then this is the splendid science show for you. Join BBC *Bitesize* science presenter Jon Chase as he delves into the whoopsy waffling worlds of Roald Dahl.

**VENUE:** Norwich School, Blake Studio  
**COST:** £5 per person  
**AGE:** 7+  
**BOOK:** [norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)

**LIFE KITCHEN WITH RYAN RILEY**

**SAT 19 OCT**  
11am–12pm

**WORK SHOP**

Supported by The Assembly House Trust



THE ASSEMBLY HOUSE

A special event for people undergoing chemotherapy, and their families. Join Life Kitchen's Ryan Riley to explore how to reignite the spark of enjoyment in eating, with brilliantly clever combinations of ingredients, often using the fifth taste, umami, to heighten and amplify the flavours in his dishes.

**VENUE:** The Assembly House  
**COST:** Free, booking required  
**AGE:** 15+  
**BOOK:** [norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)



**MICROBODYSSEY**

**SAT 19 OCT**  
11am–11.45am,  
2.30pm–3.15pm



Discover the extraordinary world of microbes – the invisible organisms that shape our planet. Join your larger-than-life tour guide Brenda and friendly lab assistant Charles as they unearth these miniature monsters and curious creatures. A visual theatre experience for both adults and children featuring puppetry, shadow theatre and an original score. Plus a chance to meet the puppets after the show!

**VENUE:** Norwich Puppet Theatre  
**COST:** £9/£32 family (2 adults & 2 children or 1 adult & 3 children)  
**AGE:** 5+  
**BOOK:** [puppettheatre.co.uk](http://puppettheatre.co.uk) / 01603 629921



**THE SCIENCE OF FOOD WITH MARTY JOPSON**

**SAT 19 OCT**  
1pm–2pm,  
2.30pm–3.30pm



See p8.

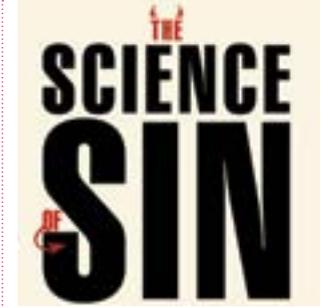


**WELL FED DOCUMENTARY SCREENING AND DISCUSSION**

**SAT 19 OCT**  
4.30pm–6.30pm

*Well Fed* is a documentary made by two filmmakers from Amsterdam, exploring their differing opinions of Genetically Modified Organisms (GMOs). The film screening will be followed by a discussion between scientists, farmers and the audience about using genetic technologies to improve crops.

**VENUE:** The Forum, Auditorium  
**COST:** Free, booking required  
**AGE:** 12+  
**BOOK:** [norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)



**THE SCIENCE OF SIN WITH DR JACK LEWIS**

**SAT 19 OCT**  
7.30pm–8.30pm

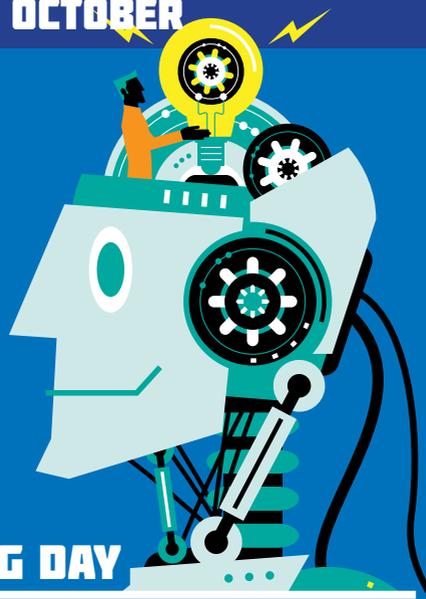
Neurobiologist and broadcaster Jack Lewis explores the neural battles between temptation and restraint that take place within our brains. Jack, author of *The Science of Sin*, will suggest strategies to help us better manage our most troublesome impulses with the explicit goal of improving our health, our happiness and our productivity.

**VENUE:** The Forum, Auditorium  
**COST:** £6  
**AGE:** 15+  
**BOOK:** [norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)



# BODY AND MIND

## HEALTH & WELLBEING DAY



SUN 20 OCT  
10am-4pm

### THE EXPLORIUM!

Sponsored by:



Discover how amazing our bodies and minds really are, in this special day dedicated to health and wellbeing. Researchers from UEA bring a whole host of hands-on activities for you to explore. Find out how cataracts can cloud your vision, and how science is helping to blow those clouds away. Learn how your child's brain works and develops, or how smoking affects human health, and the science that's helping smokers to kick the habit. Test your own brain's superpowers by changing your vision, and see how quickly you adjust. Join in with exciting psychological experiments that make you think about how you understand the world around you. Plus activities from Fitness Space, Mind Wellbeing Service, Easton & Otley College, Heartburn Cancer UK East Anglia, parkrun, Wellcome Genome Campus, Big C: Norfolk's Cancer Charity, and more.

**VENUE:** The Forum's Explorium  
**COST:** Free, drop-in  
**AGE:** All ages



## GALLERY STAGE

SUN 20 OCT

Enjoy some free, drop-in talks in the Gallery on the wonders of medicine, eradicating diseases, how ageing affects our eyesight, and more. First come, first served.

11am-11.30am  
Science Saved My Life: A Patient's Experience of Breast Cancer

12pm-1pm  
The Last Days of Smallpox: Triumph and Tragedy

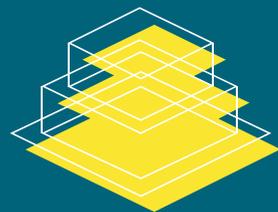
1.15pm-1.45pm  
Rewiring the Brain after Injury

2pm-2.30pm  
Reprogramming Cancer

2.45pm-3.15pm  
A Virtual Day Out: Discover Norwich with a Behavioural Economist

3.30pm-4pm  
Cataracts: Blow the Clouds Away

**VENUE:** The Forum's Gallery  
**COST:** Free, drop-in  
**INFO:** [norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)



### THAT'S NON-SENSE WITH GINNY SMITH

SUN 20 OCT  
10.30am-11.30am

Think you see with your eyes and taste with your tongue? Prepare to be amazed, confounded and confused in this demo-packed tour of your brain as you find out your senses aren't as simple as they seem... and even discover some senses you never knew you had!

**VENUE:** Norwich School, Blake Studio  
**COST:** £5 per person  
**AGE:** 7+  
**BOOK:** [norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)



### DOCTORS

SUN 20 OCT  
10.30am-11.15am

The doctors' surgery is open. Join us for a fun-filled role play session where we put our knowledge of bodies to the test and make people better.

**VENUE:** Millennium Library, Vernon Castle Room  
**COST:** £5.50 per child  
**AGE:** 2-4  
**BOOK:** [norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)

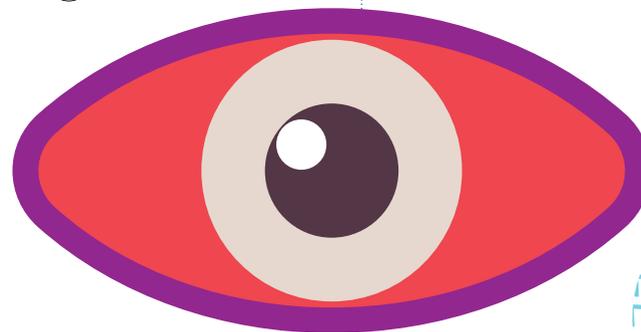
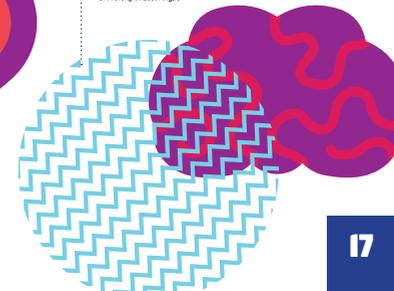


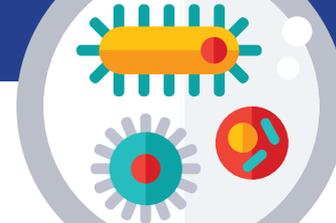
### UNDERSTANDING DEMENTIA SLEEP, NUTRITION AND LIFESTYLE

SUN 20 OCT  
10.30am-11.30am

With over 850,000 people living with dementia in the UK, scientists must approach understanding its effects via many different pathways. Learn how UEA research is tackling dementia through cognition (Prof Michael Hornberger), nutrition (Prof Anne-Marie Minihane) and sleep (Dr Alpar Lazar) in this special panel discussion, chaired by UEA Pro-Vice-Chancellor Prof Dylan Edwards.

**VENUE:** The Forum, Auditorium  
**COST:** Free, booking required  
**AGE:** 15+  
**BOOK:** [norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)





**DNA DETECTIVES**  
DNA EXTRACTION FROM BANANAS  
RELAXED SESSION

**SUN 20 OCT**  
11am–12pm

**WORK SHOP**

A fantastic session where children with autism or Asperger's can work together with their siblings to learn what DNA is, discover where we find it and how big it is... and even see some real DNA!

**VENUE:** Sir Isaac Newton Sixth Form  
**COST:** £5 per child  
**AGE:** 5+  
**BOOK:** [norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)



**STROKE AND BRAIN DISEASE**  
THE SCIENCE BEHIND THE DIAGNOSIS

**SUN 20 OCT**  
12pm–1pm

Why does the brain stop working properly in different diseases such as stroke, multiple sclerosis, meningitis, or Parkinson's disease? Join Dr Kneale Metcalf (NNUH) as he demystifies how this complex organ works and how disease or pathology lead to particular issues or deficits.

**VENUE:** The Forum, Auditorium  
**COST:** Free, booking required  
**AGE:** 12+  
**BOOK:** [norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)

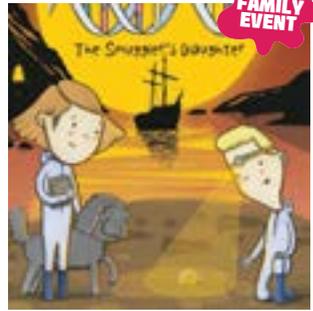


**MASTERING MEMORY**  
WITH GINNY SMITH

**SUN 20 OCT**  
12.30pm–1.30pm

What happens in the brain when we learn and create memories? And should we always trust everything we remember? This highly interactive show from science presenter Ginny Smith showcases cutting-edge research from the frontiers of psychology and neuroscience, plus some tips and tricks to help you make the most of your memory.

**VENUE:** Norwich School, Blake Studio  
**COST:** £6  
**AGE:** 15+  
**BOOK:** [norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)



**DNA DETECTIVES**  
THE SMUGGLER'S DAUGHTER

**SUN 20 OCT**  
12.45pm–1.45pm

A fantastic interactive show about shipwreckers, DNA and hidden treasure! Discover how DNA is used to find out what someone looks like, where they come from and help to return the treasure to its owner. Perfect for budding scientists.

**VENUE:** Sir Isaac Newton Sixth Form  
**COST:** £5 per person  
**AGE:** 5+  
**BOOK:** [norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)

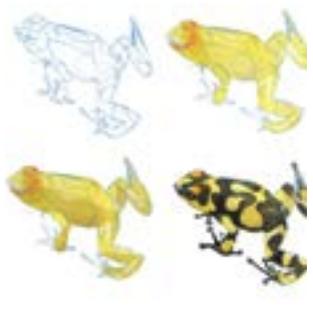


**FROM GENES TO CANCER**

**SUN 20 OCT**  
1.30pm–2.30pm

UEA's Prof Colin Cooper sequences the genomes from cancers taken from patients when they undergo surgery. In this talk, he describes how his team use genomic sequence data to better understand how cancer develops and spreads around the body, providing information that is leading to changes in clinical practice.

**VENUE:** The Forum, Auditorium  
**COST:** Free, booking required  
**AGE:** 12+  
**BOOK:** [norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)



**ANIMAL DRAWING WORKSHOP**  
WITH TIM POND

**SUN 20 OCT**  
2pm–4pm

**WORK SHOP**

Join illustrator and author Tim Pond in this workshop to learn the tips and tricks for sketching wildlife. Tim shows you how to observe and draw animals – providing you with the skills, techniques and knowledge you need to create sketches of animals filled with life and movement. This workshop will focus on how to draw insects and skulls. His exhibition, Wondrous Forms of Life, runs throughout the Festival (see p10).

**VENUE:** Millennium Library, Vernon Castle Room  
**COST:** £5  
**AGE:** 15+  
**BOOK:** [norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)





Photo: ABM Photography

**BORROWED TIME: THE SCIENCE OF AGEING WITH SUE ARMSTRONG**

**SUN 20 OCT**  
2.30pm–3.30pm

How can we remain fit, active and independent until deep into old age? In the UK, the proportion of people over 85 is growing faster than any other age group. The implication for society – for jobs, pensions, health care – is a major preoccupation of our time. In this talk, science writer Sue Armstrong tells of the quest to understand ageing, and to prevent or delay the crippling conditions associated with old age.

**VENUE:** Norwich School, Blake Studio  
**COST:** £6  
**AGE:** 18+  
**BOOK:** [norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)



**PERCEPTION PERPLEXION WITH JAMES PIERCY**

**SUN 20 OCT**  
3pm–4pm

How do we make sense of the world around us? James Piercy explores the wonderfully named ‘hypothesis hypothesis’ using illusions to show how most of our understanding is just a best guess and that brains tend to be lazy. Watch spoon bending and hear infinite sounds to see just how clever you can be without knowing it and just how wrong you can be too.

**VENUE:** The Forum, Auditorium  
**COST:** £5 per person  
**AGE:** 10+  
**BOOK:** [norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)



**FORENSIC PSYCHOLOGY IS OFFENDER PROFILING ART OR SCIENCE?**

**SUN 20 OCT**  
4.30pm–5.30pm

How do the police use offender profiling to help catch serious criminals? Often forensic psychologists assist the senior investigating officer, employing offender profiling – which uses psychological or behavioural markers. Former Scotland Yard Detective, Steve Gaskin, from Right Angle Events, will show you how it is used and will help you compile your own offender profile. All proceeds to the Benjamin Foundation.

**VENUE:** The Forum, Auditorium  
**COST:** £6  
**AGE:** 18+  
**BOOK:** [norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)

**RIGHTANGLE**  
totally focused on teamwork.



**A RESPECTFUL CONVERSATION ON THE PLANET**

**SUN 20 OCT**  
4.30pm–6pm

The global youth movement to tackle climate change is growing, with thousands of young people taking action by joining strikes across the globe. But is direct action the most effective approach? Should young people be missing school to join protests? And what influence can Millennials and Generation Z have on politicians and world leaders to effect change? Join a panel of speakers representing the local community and its younger members to take part in an open discussion on the planet, climate change protest movements and young people’s activism.

**VENUE:** The Forum, Gallery  
**COST:** £3  
**AGE:** 12+  
**BOOK:** [norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)



**HOW TO TREAT PEOPLE: A NURSE AT WORK**

WITH MOLLY CASE

**SUN 20 OCT**  
5pm–6pm

The hand of a stranger offered in solace. A flower placed on a dead body as a mark of respect. A gentle word in response to fear and anger. It is these moments of empathy, in the extremis of human experience, which define us as people. Nobody knows this better than a nurse and Molly Case (spoken word artist, writer and nurse) has witnessed countless such moments. In her book *How to Treat People*, and this talk, she introduces us to patients with whom we share the pain, but also the experience of illness when life is at its most vivid. Plus book signing.

**VENUE:** Waterstones  
**COST:** £5  
**AGE:** 12+  
**BOOK:** [norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)

Waterstones

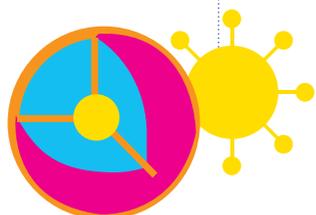


**WILDERLAND FILM FESTIVAL**

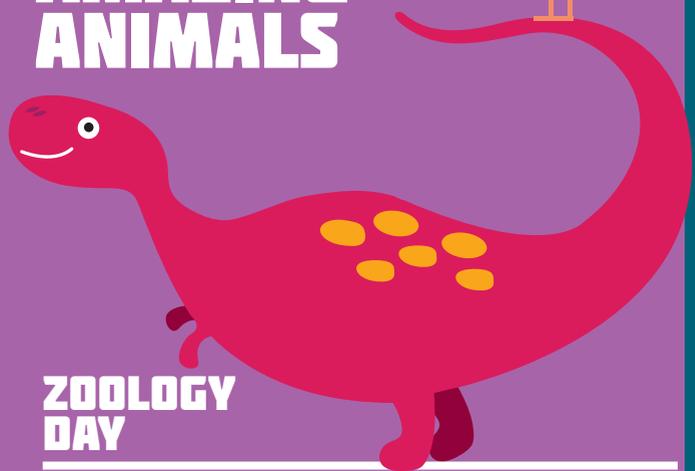
**SUN 20 OCT**  
7.30pm–9.50pm, inc. interval

Wilderland is a brand new wildlife film festival bringing important, breathtaking stories from the natural world to the big screen, made by independent filmmakers from around the globe. These groundbreaking short films will offer audiences unparalleled insight into some of the world’s most incredible wildlife, from snow leopards to orangutans to humpback whales. Wilderland founders Dan O’Neill and Isaac Rice will host and introduce each film live on stage.

**VENUE:** UEA, The Enterprise Centre  
**COST:** £12.50  
**AGE:** All ages  
**BOOK:** [norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)



# AMAZING ANIMALS



## ZOOLOGY DAY

MON 21 OCT  
10am–4pm

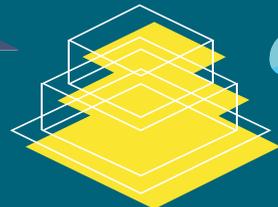
### THE EXPLORIUM!

Sponsored by



It's all about the animals! Come and explore the wonderful world of birds and beasts in our zoology day. Discover the amazing wildlife right here in Norfolk, and the work being done to save threatened species from extinction. Spot tiny free-floating organisms through a microscope. Dress up as a vet and take a 'surgeon selfie' with the Royal Veterinary College. You may even meet an escapee dinosaur from Roarr! Dinosaur Adventure! With activities from UEA, RSPB, Hawk and Owl Trust, Norfolk Wildlife Trust, Natural England, Broads Authority, Greenpeace, Back from the Brink - Shifting Sands, Food & Farming Discovery Trust, Banham Zoo, Norfolk Museums Service, London School of Hygiene & Tropical Medicine, and more.

**VENUE:** The Forum's Explorium  
**COST:** Free, drop-in  
**AGE:** All ages



## GALLERY STAGE

MON 21 OCT

Pop into the Gallery for a whole host of interesting animal-related talks, from the striking stone curlew to the humble spider. First come, first served.

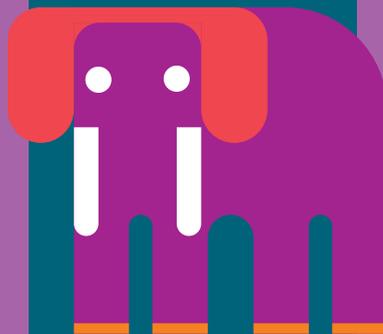
12pm–12.30pm  
Phytoplankton: The First Architects of Nature and Earth's Oxygenators!

1pm–1.45pm  
CSI Hares and Rabbits: What's Happened to Them?

2pm–2.30pm  
Shifting Sands: Stone Curlew and Arable Landscapes

3pm–3.30pm  
Spiders Aren't Scary

**VENUE:** The Forum's Gallery  
**COST:** Free, drop-in  
**BOOK:** [norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)



## LIVE ANIMAL DISSECTION

MON 21 OCT  
10am–4pm

Join Prof Ben Garrod (UEA) and Prof John Hutchinson (Royal Veterinary College) in this scientific dissection to reveal the inner workings of an animal. Please note that the animal died of natural causes and has been donated for the purpose of education.

**VENUE:** Outside The Forum  
**COST:** Free, drop-in  
**AGE:** Parental advisory



## MINIBEAST ADVENTURE WITH DR JESS FRENCH

MON 21 OCT  
10am–11am

Join CBeebies' *Minibeast Adventures* star, zoologist Dr Jess French as she introduces the fascinating world of minibeasts. Get a closer look at a host of incredible creatures and learn more about their weird and wonderful lives.

**VENUE:** Stage 2, Theatre Royal  
**COST:** £5 per person  
**AGE:** 4–8  
**BOOK:** [norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)

## MADDIE'S FANTASTIC FACTORY TOUR!

WITH MADDIE MOATE

MON 21 OCT  
11am–12pm, 2pm–3pm

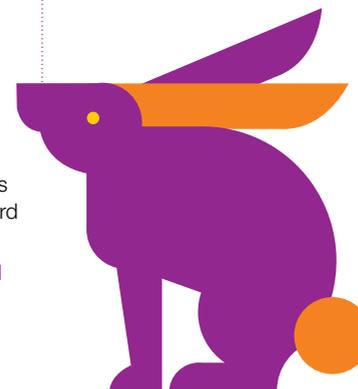
See p5.

## HOW WELL DO YOU KNOW YOUR FAMILY TREE?

MON 21 OCT  
11am–11.30am

Ever wondered how whales can dive deep under the ocean? Why a beaver is so good at gnawing wood? How hibernating mammals sleep so deeply? Come and celebrate the diversity of mammals and learn about how studying them offers insight into what makes us human and how we treat disease.

**VENUE:** The Forum, Auditorium  
**COST:** Free, booking required  
**AGE:** 12+  
**BOOK:** [norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)



## JUNGLE ADVENTURE

MON 21 OCT  
11.15am–12pm

Take a trip into the jungle in this role-playing adventure, and discover what wildlife lurks in the forest! Will you spot jaguars, monkeys, or snakes!?

**VENUE:** Sir Isaac Newton Sixth Form  
**COST:** £5.50 per child  
**AGE:** 4–6  
**BOOK:** [norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)

## LITTLE PEOPLE'S DRAMA

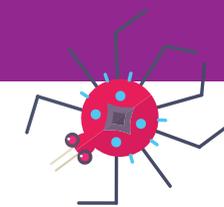


## HOW TO BE A VET WITH DR JESS FRENCH

MON 21 OCT  
11.45am–12.30pm

From puppy kisses to cow pats, every day is different in the life of a vet! Find out about lots of incredible ways you could work with animals – and what it's really like to be a vet, with CBeebies' *Minibeast Adventures* star, zoologist Dr Jess French.

**VENUE:** Stage 2, Theatre Royal  
**COST:** £5 per person  
**AGE:** 6+  
**BOOK:** [norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)



**SAVING THE SPECTACLED BEAR OF DEEPEST, DARKEST COLOMBIA**

**MON 21 OCT**  
12pm–12.30pm

Hailing from deepest, darkest Colombia, the spectacled bear is the only species of bear to live in South America. Sadly, numbers of spectacled bears in the wild are plummeting. Come and find out how scientists at the Earlham Institute are using genetics to learn about the secretive lives of these bears, helping with their conservation. Don't forget your marmalade sandwiches!

**VENUE:** The Forum, Auditorium  
**COST:** Free, booking required  
**AGE:** 12+  
**BOOK:**  
[norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)



**TAKE AN URBAN SAFARI WITH GASPARD THE FOX**

**MON 21 OCT**  
1pm–2pm

It's an unlikely pairing – a radio presenter and an urban fox. BBC Radio 4 newsreader Zeb Soanes came home one night to find an injured fox outside his house. What seemed a simple offering of wafer-thin ham led to a beautiful friendship between Zeb and 'Gaspard' the fox, who is now the star of a series of children's picture books. Come and hear about Gaspard's adventures, create some foxy crafts and join Zeb and a team from UEA for an urban safari into the city of Norwich. Plus booksigning.

**VENUE:** Millennium Library  
**COST:** £2 per child  
**AGE:** 5–8  
**BOOK:** [store.uea.ac.uk](http://store.uea.ac.uk)



**TRIP TO THE ZOO**



**MON 21 OCT**  
1pm–1.45pm



In this fun role-playing session we become zookeepers and look after all the animals in our care.

**VENUE:** Sir Isaac Newton Sixth Form  
**COST:** £5.50 per child  
**AGE:** 2–4  
**BOOK:**  
[norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)

**LITTLE PEOPLE'S ★ DRAMA**



**SHARKS ON SCREEN**



**MON 21 OCT**  
2pm–3pm

Sharks play a vital role in our oceans, yet through films like *Jaws*, *The Meg* and *Sharknado*, Hollywood appears addicted to their horror appeal. Could this popular public image hinder the conservation of sharks... or could it help? Science writer Jules Howard talks to BBC presenter Professor Ben Garrod, science communicator Hana Ayoub and Megalodon palaeobiologist, Dr Catalina Pimiento.

**VENUE:** Stage 2, Theatre Royal  
**COST:** £5 per person  
**AGE:** 7+  
**BOOK:**  
[norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)



Photo: Bethan Knapper

**OUR PLASTIC PLANET? WITH LIZZIE DALY & DR JESS FRENCH**

**MON 21 OCT**  
3pm–4pm

Our poor planet is drowning in plastic and choking on poisonous gases. What changes can you make in your day-to-day life that could help to save it? Join TV presenters and scientists Lizzie Daly and Jess French (CBeebies) who reveal shocking facts about our plastic problem (did you know that every plastic toothbrush ever made still exists?) and give you some super easy top tips for how you can reduce your plastic use. Plus booksigning with Jess French.

**VENUE:** The Forum, Auditorium  
**COST:** £5 per person  
**AGE:** 7+  
**BOOK:**  
[norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)



**LESSONS FROM THE LAZY SLOTH WITH LUCY COOKE**

**MON 21 OCT**  
4.30pm–5.30pm

A humorous but informative talk from TV presenter, filmmaker and author Lucy Cooke, who will share the secrets of the sloth's eccentric biology. She reveals that far from being lazy and stupid, sloth is actually a winning strategy in the evolutionary arms race. We humans have much to learn from the sloth: being fast is overrated and, having outlived the dinosaurs and the woolly mammoths, the sloth is the true king of the jungle. Plus booksigning.

**VENUE:** Stage 2, Theatre Royal  
**COST:** £5 per person  
**AGE:** 8+  
**BOOK:**  
[norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)

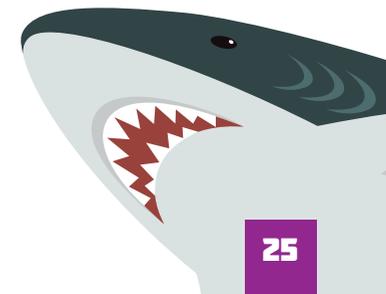


**THE GENDERED BRAIN WITH PROF GINA RIPPON**

**MON 21 OCT**  
5.30pm–6.30pm

Reading maps or reading emotions? Barbie® or LEGO®? We live in a gendered world where we are bombarded with messages about sex and gender. On a daily basis we face deeply ingrained beliefs that your sex determines your skills and preferences, from toys and colours to career choice and salaries. Neuroscientist Gina Rippon interrogates what this constant gendering means for our thoughts, decisions and behaviour. And what does it mean for our brains? Plus booksigning.

**VENUE:** The Forum, Auditorium  
**COST:** £6  
**AGE:** 12+  
**BOOK:**  
[norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)





**THE GARDEN JUNGLE:**  
GARDENING TO SAVE  
THE PLANET WITH PROF  
DAVE GOULSON

MON 21 OCT  
6pm-7pm

Sponsored by



Insects are under threat. But how should we tackle the crisis? Join Dave Goulson, Professor of Biology and author of bestselling books about bees and other insects, as he explores how we can turn our gardens, town and cities into oases for life, and change the way we grow food. Plus book signing.

**VENUE:** The Forum, Gallery  
**COST:** £6  
**AGE:** 10+  
**BOOK:**

[norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)



**DRAGON HALL  
DEBATES: GUTS**

MON 21 OCT  
7pm-9pm

Can you stomach a debate? UEA and the National Centre for Writing invite you to join journalist and presenter Tim Hayward, Dr Lindsay Hall from the Quadram Institute and UEA's Prof Tiffany Atkinson at Dragon Hall to have your say and hear from this diverse line-up of gutsy experts.

**VENUE:** National Centre for Writing, Dragon Hall  
**COST:** Free, booking required  
**AGE:** 15+  
**BOOK:** [bit.ly/ncw-whats-on](http://bit.ly/ncw-whats-on)



**A JOURNEY SOUTH  
WITH CHRIS WATSON**

MON 21 OCT  
7.30pm-8.30pm

Experience a sound journey to the Antarctic and the South Pole, with sound recordist and musician Chris Watson. This audiovisual tour includes recordings made during the BBC series *Frozen Planet* – the sounds of glaciers calving, Adelie penguins, orcas hunting, and Weddell seals singing under the sea ice – and concludes at the South Pole, at the location of Captain Robert Falcon Scott's ill-fated journey in 1912. The sound journey is accompanied by narration from Chris and images to illustrate the locations.

**VENUE:** The Forum, Auditorium  
**COST:** £8  
**AGE:** 7+  
**BOOK:**  
[norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)

**X-RATED NATURE II  
WITH LIZZIE DALY, DR ADAM  
RUTHERFORD, LUCY COOKE  
& PROF BEN GARROD**

MON 21 OCT  
8.30pm-10.30pm

See p7.



**OUR  
NATURAL  
WORLD**

**NATURE DAY**

TUE 22 OCT  
10am-4pm

**THE EXPLORIUM!**

Sponsored by

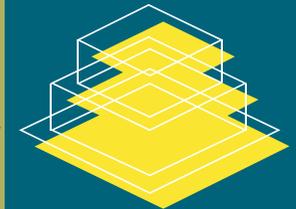


Explore the wonders of our natural world, from the tiniest creatures imaginable to the vastness and importance of our oceans. Find out how we can help save bees and make a bee hotel with Bee Saviour Behaviour, plus embark on the bumblebee trail from the Earlham Institute. Become a bird with the interactive Fly: The Bird Migration Game from UEA. Discover why it's important to care for our waterways, with Anglian Water's RiverCare team. Plus activities from Veolia, Pensthorpe, Easton & Otley College, Broads Authority, Natural England, Norfolk Wildlife Trust, Hawk and Owl Trust, Wellcome Genome Campus, Back from the Brink – Shifting Sands, Greenpeace, Hethel Innovation, BTO, NUA and more.

**VENUE:** The Forum's Explorium  
**COST:** Free, drop-in  
**AGE:** All ages



VISIT [NORWICHSCIENCEFESTIVAL.CO.UK](http://NORWICHSCIENCEFESTIVAL.CO.UK)



**GALLERY  
STAGE**

TUE 22 OCT

Join us in the Gallery for a range of free, drop-in talks on our natural world, from local wildlife to the impact of climate change on the Antarctic. First come, first served.

11am-11.30am  
**Emma's Antarctic Adventure:**  
Algae and Climate Change  
on the High Seas

12pm-12.30pm  
**Why Do we Play Games?**

1pm-1.45pm  
**Migratory Birds in a  
Changing World**

2pm-2.45pm  
**Unlocking the Dangerous  
Secrets of Thwaites Glacier**

3pm-3.30pm  
**Shifting Sands: Brecks  
Wildlife and Ecology**

**VENUE:** The Forum's Gallery  
**COST:** Free, drop-in  
**INFO:**  
[norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)



# 2019 VENUES

## City Centre:

- 1 The Forum, Millennium Plain, Norwich, NR2 1TF
- 2 Norfolk & Norwich Millennium Library, Millennium Plain, Norwich, NR2 1AW
- 3 Sir Isaac Newton Sixth Form, 30 Bethel Street, Norwich, NR2 1NR
- 4 Waterstones, Castle Street, Norwich, NR2 1PB
- 5 Jarrold, 1-11 London Street, Norwich, NR2 1JF
- 6 Norwich Cathedral, The Close, Norwich, NR1 4DH
- 7 The Assembly House, Theatre Street, Norwich, NR2 1RQ
- 8 Norwich School, Blake Studio, Norwich, NR1 4DD
- 9 Norwich Playhouse, 42-58 St. George's Street, Norwich, NR3 1AB
- 10 Norwich Arts Centre, 51 St. Benedict's Street, Norwich, NR2 4PG
- 11 Norwich Castle Museum and Art Gallery, Castle Hill, Norwich, NR1 3JU
- 12 Stage 2, Theatre Royal, Theatre Street, Norwich, NR2 1RL
- 13 Castle Mall, 100 Castle Mall, Norwich, NR1 3DD
- 14 The Octagon Chapel, Colegate, Norwich, NR3 1BN
- 15 Museum of Norwich at the Bridewell, Bridewell Alley, Norwich, NR2 1AQ
- 16 Norwich Puppet Theatre, St James, Whitefriars, Norwich, NR3 1TN
- 17 Maddermarket Theatre Bar, St John's Alley, Norwich, NR2 1DR
- 18 The Garage, 14 Chapel Field North, Norwich, NR2 1NY
- 19 intu Chapelfield, 40-46 St Stephens Street, Norwich, NR1 3SH
- 20 National Centre for Writing, Dragon Hall, 115-123 King Street, Norwich, NR1 1QE
- 21 No.8 Meeting Rooms, 8 Thorpe Rd, Norwich, NR1 1RY
- 22 The Murderers Pub, 2 - 8 Timber Hill, Norwich, NR1 3LB

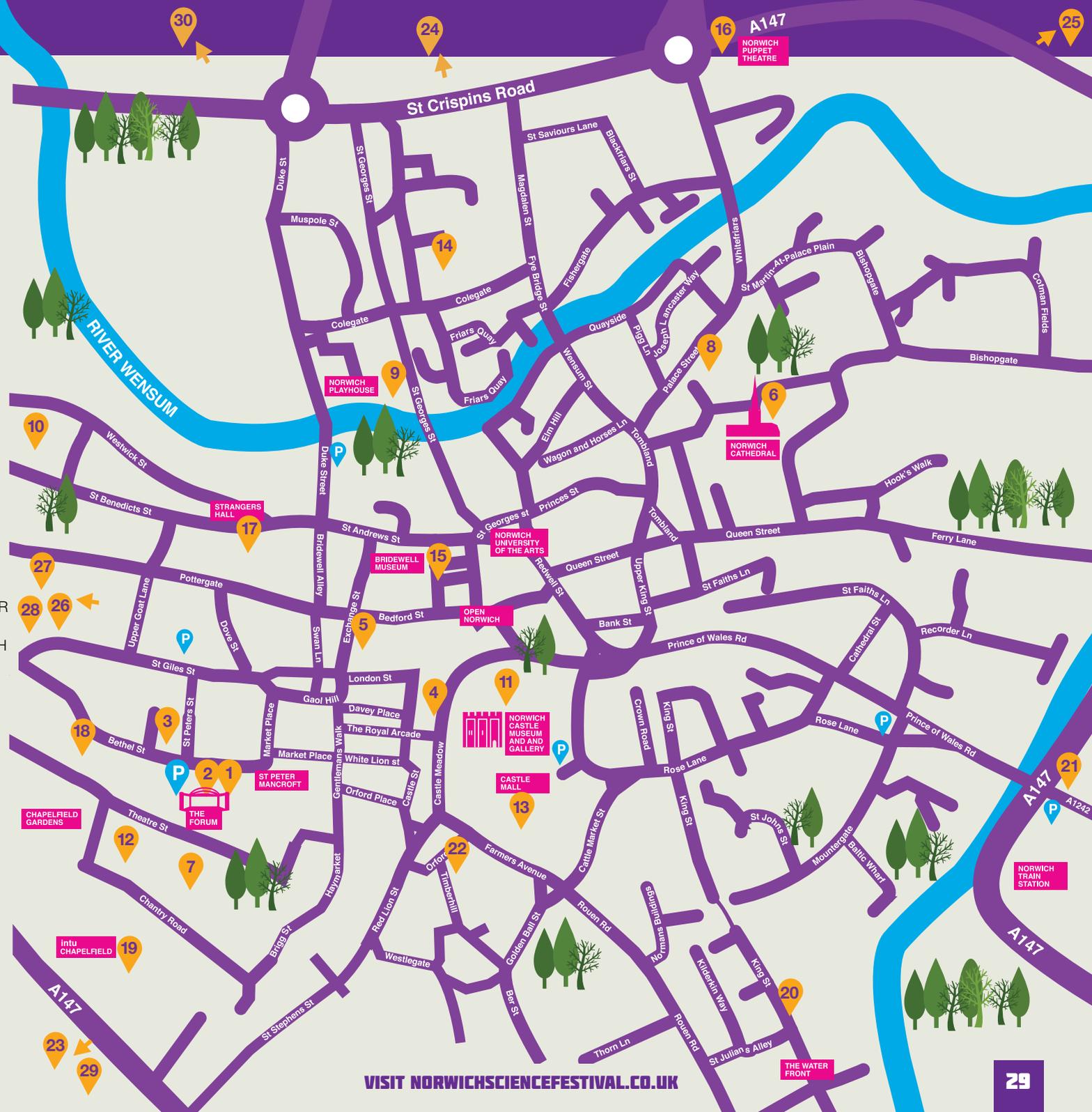
## Further out:

- 23 Tuckswood Library, Robin Hood Rd, Norwich, NR4 6BX
- 24 Mile Cross Library, Aylsham Rd, Norwich, NR3 2RJ
- 25 Plumstead Road Library, Plumstead Rd, Norwich, NR1 4JS
- 26 Earlham Library, Colman Rd, Norwich, NR4 7HG
- 27 West Earlham Library, 17-18 Earlham West Centre, Norwich, NR5 8AD
- 28 UEA (inc. Enterprise Centre and The Julian Study Centre), University of East Anglia, Norwich Research Park, Norwich, NR4 7TJ
- 29 UTCN, Old Hall Road, Norwich, NR4 6FF

## Outside of Norwich:

- 30 Deepdale Backpackers and Camping, Deepdale Farm, Burnham Deepdale, PE31 8DD

See [norwichsciencefestival.co.uk/plan-your-visit](http://norwichsciencefestival.co.uk/plan-your-visit) for accessibility info.





FAMILY EVENT

**MINI PROFESSORS**  
FLOWERS / WATER

WORK SHOP

**TUE 22 OCT**  
Flowers:  
10am–10.40am,  
11.20am–12pm  
Water: 1pm–1.40pm,  
2.20pm–3pm

Come and join in the fun with Mini Professors! We'll be making colourful flower collages to take home, dyeing some blooms and dissecting plants to discover how water moves through them. Or, grab a mini labcoat and join us as we investigate some of the amazing properties of water! There will be lots of fun tricks and experiments that you can repeat with your Mini Professors at home.

**VENUE:** Sir Isaac Newton Sixth Form  
**COST:** £5.50 per child  
**AGE:** 3-5  
**BOOK:**

[norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)



FAMILY EVENT

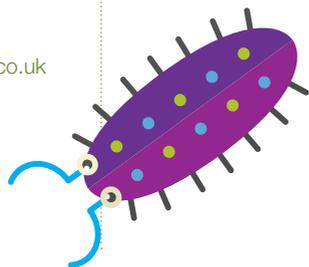
**MINI MONSTERS**

WORK SHOP

**TUE 22 OCT**  
11am–3pm

Join the Kastle Kids team and meet some very friendly creepy crawlies and reptiles from Mini Monsters. Learn lots of fascinating facts about each creature before getting the chance to meet them up close and see what they feel like (if you're brave enough). Plus free storytelling and crafts.

**VENUE:** Castle Mall, Level 1  
**COST:** Free, drop-in  
**AGE:** 5+



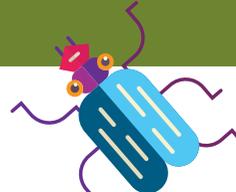
FAMILY EVENT

**FOSSIL FRONTIERS**  
WITH JULES HOWARD

**TUE 22 OCT**  
11am–12pm

Zoologist, presenter and author Jules Howard explores the latest fossil finds in this lively palaeo-packed show. Expect toilet-roll timelines, how-to-fossilise-me guidance and free fossil gifts (plus, of course, fossil poo) as Jules delves into what makes this science such an exciting study area in recent years.

**VENUE:** The Forum, Auditorium  
**COST:** £5 per person  
**AGE:** 7+  
**BOOK:**  
[norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)



FAMILY EVENT

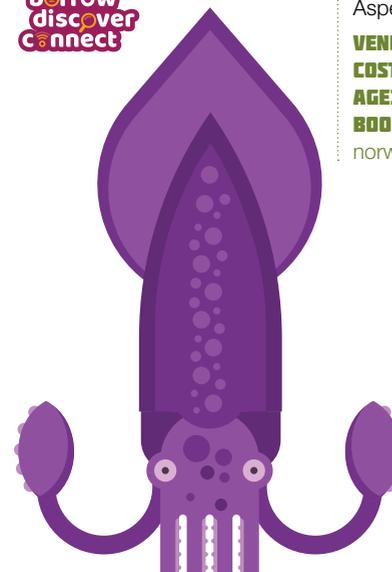
**FUN WITH CODE**  
-A-PILLAR

WORK SHOP

**TUE 22 OCT**  
11am–11.45am

Join Norfolk Library and Information Service for a storytime with a difference – meet Code-a-pillar and learn some early coding skills. Perfect for young digital explorers!

**VENUE:** Tuckswood Library  
**COST:** Free, booking required  
**AGE:** 4–6  
**BOOK:** 01603 452038 / [tuckswood.lib@norfolk.gov.uk](mailto:tuckswood.lib@norfolk.gov.uk)



FAMILY EVENT

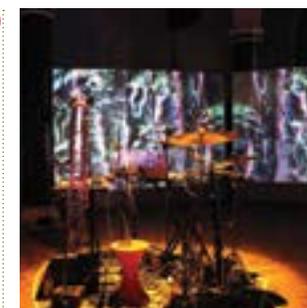
**UGLY ANIMALS: WEIRD LIFE UNDERWATER**  
WITH SIMON WATT



**TUE 22 OCT**  
1pm–2pm  
Relaxed session: 3pm–4pm

From fish that use sickening slime as defence to sea cucumbers that fight with their bum, our seas are full of some of the strangest animals in the world. Join biologist and presenter Simon Watt to hear how to help these creatures and our planet survive. Plus a special relaxed session at 3pm for children with autism or Asperger's and their families.

**VENUE:** The Forum, Auditorium  
**COST:** £4 per person  
**AGE:** 5+  
**BOOK:**  
[norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)



**[UNIT] :**  
**[REACH THE MOON]**

**TUE 22 & WED 23 OCT**  
2pm–2.45pm, 6pm–6.45pm,  
8pm–8.45pm

Supported by



Supported using public funding by  
**ARTS COUNCIL ENGLAND**

[UNIT] is a collective of artists producing 3D immersive audio/visual performances. [Reach The Moon] is a brand new, site-specific work celebrating the 50th anniversary of the first human moon landing and will transform the auditorium of Norwich Arts Centre into an all-encompassing, multi-sensory audiovisual feast bringing art and science together.

**VENUE:** Norwich Arts Centre  
**COST:** Pay What You Can Afford  
£4 concessions / £6 / £9 / £12  
**AGE:** 5+  
**BOOK:** 01603 660352 / [norwichartscentre.co.uk](http://norwichartscentre.co.uk)

Norwich Arts Centre.





Photo: Elin Roberts



Photo: Elin Roberts



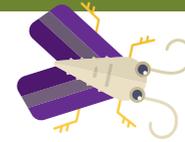
Photo: Elin Roberts



Photo: Owen Vincent



Photo: Honeybunn



**WHY WE DIE**  
WITH SIMON WATT

**TUE 22 OCT**  
5pm-6pm

Death might not be certain, though taxes probably are. In this lecture, featuring immortal jelly fish, the world's slowest bacteria and the cast of *Alice Through the Looking Glass*, Simon Watt delves into the surprising science behind why we die, and what the alternatives might be. Come satisfy your morbid curiosity.

**VENUE:** The Forum, Auditorium  
**COST:** £6  
**AGE:** 7+  
**BOOK:** [norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)

**NEUROPLASTICITY: REWIRING YOUR BRAIN**

**TUE 22 OCT**  
6.30pm-8pm

Brain injury affects 250,000 people every year. Good rehabilitation is achieved by following the principles of neuroplasticity. Join brain injury survivor James Piercy and neuroscientist Dr Michael Grey as they discuss the changing brain. Can we see James' brain change as he learns a new task?

**VENUE:** The Forum, Gallery  
**COST:** £5  
**AGE:** 15+  
**BOOK:** [norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)

**BIRD THERAPY**  
WITH JOE HARKNESS

**TUE 22 OCT**  
6.30pm-7.30pm

Explore the therapeutic benefits of birdwatching for mental health, with Bird Therapy's Joe Harkness, a Norfolk-based birdwatcher and Special Educational Needs Coordinator. Focusing on his own issues, Joe shows how our environment can help us with our mental health and how the experience of being outdoors can be reinvigorating.

**VENUE:** Waterstones  
**VENUE:** £6  
**AGE:** 16+  
**BOOK:** [norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)



Waterstones

**MARINE MICROBES**  
PROF CAROL ROBINSON'S  
UEA INAUGURAL LECTURE

**TUE 22 OCT**  
6.30pm-7.30pm

The respiration of marine bacteria, phytoplankton and zooplankton directly affects the Earth's climate, influencing how much carbon and oxygen can be stored in the ocean and how much carbon dioxide remains in the atmosphere. In her inaugural lecture, UEA's Prof Carol Robinson shows how we can understand and predict the future health of our oceans by monitoring these microbes, using microscopes, research ships, underwater gliders and satellites.

**VENUE:** UEA, Julian Study Centre  
**COST:** Free, drop-in  
**AGE:** 15+



**HASHTAG: MY PERFECT WORLD**

**TUE 22 OCT**  
7.30pm-8.30pm

Is social media really to blame for poor teenage mental health? TV and radio presenter and Young Minds Ambassador, Katie Thistleton, explores whether living our lives through our online profiles is a force for good or a path to unhappiness. An engaging discussion which will interest both teenagers and parents with panellists Dr Radha Modgil (GP, Radio 1 and TV presenter and mental health campaigner), Claire Eastham (bestselling author, award-winning mental health blogger), Amy Orben (University of Oxford) and Dr Harry Dyer (UEA).

**VENUE:** The Forum, Auditorium  
**COST:** £3  
**AGE:** 13+  
**BOOK:** [norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)

**MEET THE SCIENTISTS**

**TUE 22 OCT**  
6pm-7.30pm

Meet the Norwich Research Park scientists behind the stunning Engaging Images exhibition. Come and hear about the latest discoveries and research behind the images on show.

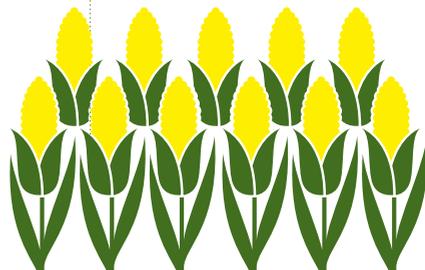
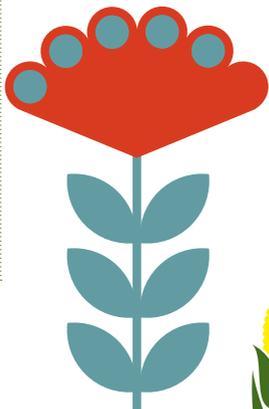
**VENUE:** The Forum  
**VENUE:** Free, booking required  
**AGE:** 12+  
**BOOK:** [norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)



**JO SARSBY PERSONAL MANAGEMENT PRESENTS**  
**ADAM RUTHERFORD - THE BOOK OF HUMANS**

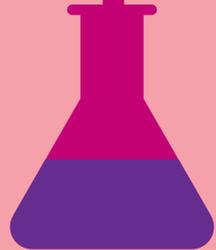
**TUE 22 OCT**  
8pm-9.30pm, inc. interval

See p7.





# NORWICH RESEARCH PARK DAY



WED 23 OCT  
10am–4pm

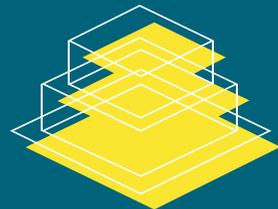


## THE EXPLORIUM!

Discover the groundbreaking science happening at the Norwich Research Park! Find out what happens in the lab, and how the Park's vision to change lives and rethink society is being brought to life, right on your doorstep.

Step into a giant nose and learn the science behind snot, allergies and asthma. Become an atmospheric detective, or witness a giant seed pod explode in front of your eyes. Take flight on the bumblebee trail or build a new species of plant from LEGO®. Activities from Norwich Research Park partners UEA, the John Innes Centre, the Quadram Institute, the Earlham Institute and The Sainsbury Laboratory, plus Big C: Norfolk's Cancer Charity.

**VENUE:** The Forum's Explorium  
**COST:** Free, drop-in  
**AGE:** All ages



## GALLERY STAGE

WED 23 OCT

Pop into the Gallery for some free, drop-in talks from scientists from the Norwich Research Park. First come, first served.

11am–11.30am

**Microbes: Science's Jekyll and Hyde**

12pm–12.30pm

**Silent Orchards: The Importance of Pollinators**

1pm–1.45pm

**Health: It's Not Just in Your Genes!**

2.15pm–3pm

**Bacteria in the Gut? The Good, the Bad and the Protective**

3.30pm–4pm

**Climate Change: Why Should you Care?**

**VENUE:** The Forum's Gallery

**COST:** Free, drop-in

**INFO:**

[norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)



## GAMECHANGERS

WED 23 OCT  
9am–4pm

Is your child the next big biotech entrepreneur? Gamechangers is an exciting one-day event from Hethel Innovation for ages 13–18, who are looking to learn about STEM careers, innovation and business planning. This session has a biotech twist and will develop problem-solving skills to tackle a synthetic biology challenge!

**VENUE:** Sir Isaac Newton

Sixth Form

**COST:** Free, booking required

**AGE:** 13–18

**BOOK:** [bit.ly/2WNFY21](http://bit.ly/2WNFY21)



## SHIFTING MINDSETS CLIMATE CHANGE AND SOCIAL TRANSFORMATIONS

WED 23 OCT  
10.30am–11.30am

How can we live and work differently – and better – and meet the need for rapid and far-reaching emission reductions? This fundamental question is at the core of the new Centre for Climate Change and Social Transformations (CAST), a major new UK research investment in climate change social science. Scientific leads from the centre, including UEA's Dr Charlie Wilson, will talk about their work with organisations and policy stakeholders to help create the shift in mindsets and behaviours needed for sustainable futures.

**VENUE:** The Forum, Auditorium

**COST:** Free, booking required

**AGE:** 15+

**BOOK:**

[norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)



## PROTISTS

### DECODING NATURE'S DARK MATTER

WED 23 OCT  
12pm–12.45pm

The living things we see are only a small proportion of life on Earth. Our environment is alive with unimaginably diverse microscopic creatures: the protists. Protists are not bacteria: they are complex single-celled organisms that may hold the key to understanding the origin of life on Earth.

**VENUE:** The Forum, Auditorium

**COST:** Free, booking required

**AGE:** 10+

**BOOK:**

[norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)



## SOIL SALVATION HOW SOIL MIGHT SAVE US

WED 23 OCT  
1.15pm–2pm

Globally, soils store far more carbon than the atmosphere. If we can increase soil carbon, we can help mitigate climate change. Plus, higher carbon soils could be healthier, meaning increased global food security. UEA's Dr Brian Reid explores how we might harness the power of soils to save us!

**VENUE:** The Forum, Auditorium

**COST:** Free, booking required

**AGE:** 10+

**BOOK:**

[norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)



**[UNIT]:  
[REACH THE MOON]**

**TUE 22 & WED 23 OCT**  
2pm–2.45pm, 6pm–6.45pm,  
8pm–8.45pm

See p31.

**BLOOMING ALGAE ON  
THE NORFOLK BROADS  
THE TEETH-WHITENER  
SOLUTION**

**WED 23 OCT**  
2.30pm–3.30pm

The golden algae *Prymnesium parvum* is a recurring seasonal issue on the Norfolk Broads, producing toxic blooms that, while non-toxic to humans, are lethal to fish, resulting in mass fish deaths on a regular basis. Find out how a team from the Norwich Research Park have been investigating these incidents, leading to new monitoring techniques that give early warnings to partners at the Environment Agency and the Broads Authority. In this talk, you'll also learn about the simple, practical approach that the team have developed to destroy *Prymnesium* blooms and the toxins that they produce.

**VENUE:** The Forum, Auditorium  
**COST:** Free, booking required  
**AGE:** 12+  
**BOOK:**

[norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)



**FUN WITH  
CODE-A-PILLAR**

**WED 23 OCT**  
3.30pm–4.15pm



Join Norfolk Library and Information Service for a storytime with a difference – meet Code-a-pillar and learn some early coding skills. Perfect for young digital explorers!

**VENUE:** Mile Cross Library  
**COST:** Free, booking required  
**AGE:** 4–6  
**BOOK:** 01603 425936 /  
[mile.cross.lib@norfolk.gov.uk](mailto:mile.cross.lib@norfolk.gov.uk)



**NANOINVASION  
WITH DR JAMIE GALLAGHER**

**WED 23 OCT**  
4pm–5pm

All around us a hidden world is taking over. It is a strange alien world where nothing is as it seems – the world of nanotechnology. Join materials scientist Dr Jamie Gallagher as we shrink down and get hands on with the tiny tech that is changing our phones, food, sport and health. Delve into a world where pencils are stronger than steel, metal becomes transparent and robots become doctors.

**VENUE:** The Forum, Auditorium  
**COST:** £4  
**AGE:** 12+  
**BOOK:**  
[norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)

**OPENING UP  
USING ANIMALS IN  
RESEARCH AT UEA**

**WED 23 OCT**  
5.30pm–6.30pm

UEA is one of 121 organisations to sign the Concordat on Openness on Animal Research in the UK, committing to greater openness in communicating about animals in research. This discussion, chaired by Fiona Fox (Chief Executive, Science Media Centre), will have UEA researchers explaining the importance of animals in their work and how animal welfare is a priority, and will be followed by an audience Q&A.

**VENUE:** The Forum, Gallery  
**COST:** Free, booking required  
**AGE:** 15+  
**BOOK:**  
[norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)

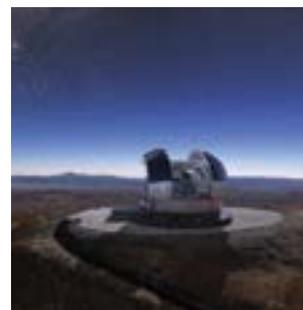


**WHAT MAKES US  
HAPPY? READING  
THE HUMAN MIND**

**WITH PROFESSOR  
ROBERT WINSTON**

**WED 23 OCT**  
6.30pm–8pm

See p5.



**TELESCOPES OF  
THE FUTURE  
WITH CAROLIN CRAWFORD**

**WED 23 OCT**  
7pm–8pm

Astronomers depend on light for their understanding of the cosmos. Dr Carolin Crawford, Public Astronomer at the Institute of Astronomy, University of Cambridge, will discuss the new telescopes and facilities arriving over the next ten years or so – how they'll not only change our view of the Universe, but also alter the way we do astronomy.

**VENUE:** The Forum, Auditorium  
**COST:** £6  
**AGE:** 10+  
**BOOK:**  
[norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)



**PINT OF SCIENCE  
- NSF SPECIAL  
FEAT. PROF BEN GARROD**

**WED 23 OCT**  
7.30pm–9.30pm

Pint of Science is returning to Norwich, featuring more exciting talks, quizzes and demonstrations designed to make you think! Our Norwich Science Festival special will be all about evolution, making you wonder 'what's next?' This event will feature esteemed TV scientist Prof Ben Garrod, alongside cutting-edge research from local scientists. Doors 7pm.

**VENUE:** The Forum, Gallery  
**COST:** £4  
**AGE:** 12+  
**BOOK:** [pintofscience.co.uk/  
events/norwich](http://pintofscience.co.uk/events/norwich)



**STORY MACHINE  
PRODUCTIONS PRESENTS  
PUSH: MY FATHER,  
POLIO, AND ME**

**WED 23 OCT**  
7.30pm–8.30pm

Supported by



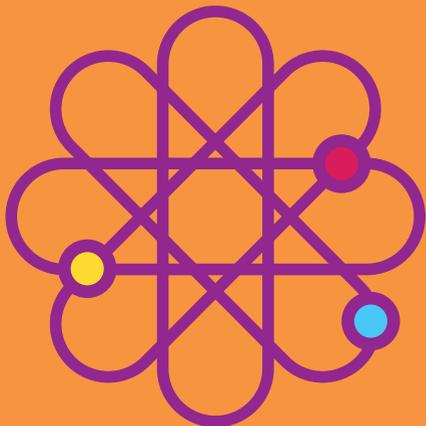
Push tells the story of a rower struck by polio, never to walk again. Of newlyweds separated, a life on hold. Sarah Passingham's great book is brought to life through film, dance, and readings. Come face-to-face with a human experience of disability before vaccination eradicated polio in the UK.

**VENUE:** National Centre for Writing, Dragon Hall  
**COST:** £8  
**AGE:** 12+  
**BOOK:**  
[norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)

**FANE PRODUCTIONS  
PRESENTS  
THIS IS GOING TO HURT  
WITH ADAM KAY**

**WED 23 OCT**  
8pm–9pm

See p6.



# MOLECULAR MATERIALS CHEMISTRY DAY

THU 24 OCT  
10am–4pm

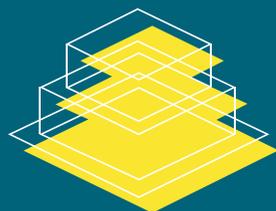
## THE EXPLORIUM!

Sponsored by



Discover how small molecules can have a big impact, and how chemistry shapes the world around us. Challenge yourself to engineer your own enzyme, and have fun with pharmacy. Find out how medicines work their way through your body to get to where they're needed. Activities from Briar Chemicals, Anglian Water, UEA, Mini Professors, Greenpower Education Trust, Norfolk Waste Partnership, NUA and Learning Resources.

**VENUE:** The Forum's Explorium  
**COST:** Free, drop-in  
**BOOK:** All ages



## GALLERY STAGE

THU 24 OCT

Join us in the Gallery for free, drop-in talks on chemistry and material science, from the chemistry of colour to how molecular design helps with lighting. First come, first served.

- 11am–11.30am  
The Chemistry of Metals in Life
- 12pm–12.30pm  
The Chemistry of Colour
- 1pm–1.30pm  
Drug Discovery: Putting a Price on Everlasting Life
- 2.30pm–3.30pm  
Molecular Design for Energy-efficient Materials

**VENUE:** The Forum's Gallery  
**COST:** Free, drop-in  
**INFO:** [norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)



## MINDBLOWING MATERIALS WITH DR JAMIE GALLAGHER

THU 24 OCT  
10.30am–11.30am

Can you power your phone with your body heat? How do you create a battery for a space probe and what might we use to power our cars in the future? All this and more as Dr Jamie Gallagher blurs the boundaries of chemistry, engineering and physics and takes a look at some of the incredible discoveries giving us the materials of tomorrow.

**VENUE:** The Forum, Auditorium  
**COST:** £4 per person  
**AGE:** 8+  
**BOOK:** [norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)

## THE HORRIBLE SCIENCE SHOW WITH NICK ARNOLD



THU 24 OCT  
11am–12pm, 2pm–3pm

See p8.

## CODER ROBOT

THU 24 OCT  
11am–12.30pm

Your chance to get hands-on with a real robot, in this workshop from Norfolk Library and Information Service. Can you code fast enough to stop him destroying the city? No coding experience required.

**VENUE:** West Earlham Library  
**COST:** Free, booking required  
**AGE:** 6–9  
**BOOK:** 01603 451881 / [west.earlham.lib@norfolk.gov.uk](mailto:west.earlham.lib@norfolk.gov.uk)



## FOOD AND HEALTH WHAT MATTERS TO YOU

THU 24 OCT  
12pm–5pm drop-in,  
6pm–8pm dialogue

Food that can cure diabetes? A drink that can clean your teeth? Drop in (12pm–5pm) for a hands-on exploration of the food and health research that happens in Norwich. From 6pm, meet Norwich Research Park scientists and work together with them to solve the problems that you see, and inspire the science of the future.

**VENUE:** Castle Mall  
**COST:** Free, booking required  
**AGE:** 12+  
**BOOK:** [norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)



## WORK SHOP



## THE POWER OF PARTY!

THU 24 OCT  
12.30pm–1pm,  
1.30pm–2pm

Sponsored by



Join the Mad Science Norfolk team and Briar Chemicals to harness the power of party! Children aged 4–11 can 'get up and atom', be mad about mixtures, get switched on, and be blown away by demonstrations at this energetic Mad Science show!

**VENUE:** The Forum, Auditorium  
**COST:** Free, booking required  
**AGE:** 4–11  
**BOOK:** [norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)





**TEA WITH A TWIST**

**THU 24 OCT**  
2.30pm–4.30pm

From the team who brought you Dinner with a Difference, a delicious afternoon treat awaits. Want to know a bit more about the science of how and why we like our food? Then join us for tea and cakes served with a twist of science, in the company of two scientists and a chef – none other than *Masterchef* finalist Dr Tim Kinnaird of Macarons and More. This is an afternoon event, distinct from Dinner with a Difference, although please note some content may be duplicated.

**VENUE:** No. 8 Thorpe Road  
**COST:** £15  
**AGE:** 18+  
**BOOK:** [tinyurl.com/SciTea19book](http://tinyurl.com/SciTea19book)



**ELEMENTARY!**  
A CELEBRATION OF 150 YEARS OF MENDELEEV'S PERIODIC TABLE

**THU 24 OCT**  
3pm–4pm

Researchers had attempted to systematise the known elements prior to Mendeleev, but his table was the one that took off and is known today. In this talk, Dr Stephen Ashworth (UEA, Kitchen Chemistry) looks at some of those early attempts and considers why we honour Mendeleev's approach, in particular. He shows how the periodic table has subsequently developed and reviews some alternative imaginings of the table.

**VENUE:** The Forum, Auditorium  
**COST:** Free, booking required  
**AGE:** 12+  
**BOOK:** [norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)

**DID YOU KNOW?**  
15 MILLION BLOOD CELLS ARE PRODUCED AND DESTROYED IN THE HUMAN BODY EVERY SECOND



**FAMILY CSI**

**THU 24 OCT**  
3pm–5pm



Join in a fun workshop, based around the board game Cluedo, but rooted in real science. Carry out a forensic test in each 'room' and solve the case by crime scene investigation and forensic science. You'll get to test for blood, dust for fingerprints, detect poison and use microscopes. All proceeds from the event go to the Benjamin Foundation.

**VENUE:** Sir Isaac Newton Sixth Form  
**COST:** £3 per person  
**AGE:** 7+  
**BOOK:** [norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)

**RIGHTANGLE**  
Totally focused on teamwork.



**SUPERHEAVY ELEMENTS**

EXPLORING THE LIMITS OF THE PERIODIC TABLE

**THU 24 OCT**  
4.30pm–5.30pm

The superheavy elements in the periodic table (beginning with rutherfordium, atomic number 104) have not been found in nature so far, but can be created in accelerator facilities. Nuclear chemist Lotte Lens looks at why and how we produce and study them – which can be difficult when they have half-lives of a few minutes to mere milliseconds.

**VENUE:** The Forum, Gallery  
**COST:** Free, drop-in  
**AGE:** 15+

**THE SCIENCE OF PLAY**  
PLAYING AND LEARNING FROM THE START OF LIFE

**THU 24 OCT**  
5pm–6pm

LEGO® Professor of Play, Prof Paul Ramchandari, gives a taster of some of the science which shows how important it is for parents/carers and children to play together, right from the start of life. Find out how early play is essential in supporting children's development – not just their social development, but their cognitive, behavioural and emotional development – but is often overlooked, because it is seen as just fun.

**VENUE:** The Forum, Auditorium  
**COST:** £5–£19 (various ticket options)  
**AGE:** 15+  
**BOOK:** [norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)

VISIT [NORWICHSCIENCEFESTIVAL.CO.UK](http://NORWICHSCIENCEFESTIVAL.CO.UK)



**COOKIE AND THE MOST ANNOYING BOY IN THE WORLD**  
WITH KONNIE HUQ

**THU 24 OCT**  
5.30pm–6.30pm

Meet Cookie Haque – nine years old, obsessed with science and ready to take on the world. Or at least she thinks she is... Cookie has never quite felt as if she fits in – a quirky girl with a touch of the geek, from a Bangladeshi family – and with an uncanny ability to get herself into almost constant scrapes and some madcap science projects. In this event, author and children's TV presenter Konnie Huq (*Blue Peter*, *Milkshake*) tells why she's a huge advocate for getting girls into science and why as a child she was just as obsessive as her character Cookie. Plus Q&A and booksigning.

**VENUE:** Jarrold, The Pantry  
**COST:** £5–£19 (various ticket options)  
**AGE:** 8–12  
**BOOK:** [jarrold.co.uk / 01603 660661](http://jarrold.co.uk/01603660661)

**JARROLD**

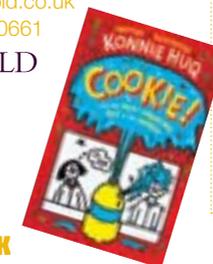


Photo: Franck V

**AI: THE END OF SOCIETY?**

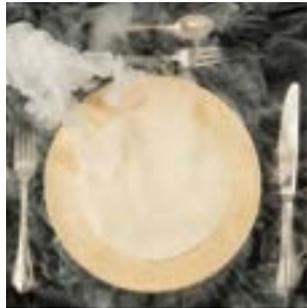
**THU 24 OCT**  
6.30pm–7.45pm

**Supported by**  
UK Research and Innovation

Artificial intelligence is all around us and most of us interact with it without even realising. But what does the rise of AI mean for society? How does it affect our social interactions and what impact will this have on future generations? Join our panel of experts, Dr Simon Hammond (UEA), Dr Oliver Buckley (UEA), Dr Beth Singler (Cambridge University) and Prof Tony Prescott (Sheffield Robotics), as they share their research and views on this hot topic.

**VENUE:** The Forum, Auditorium  
**COST:** Free, booking required  
**AGE:** 14+  
**BOOK:** [norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)





**DINNER WITH A DIFFERENCE**

**THU 24 OCT**  
6.30pm–10pm

Want to know a bit more about the science of how and why we like our food when we eat? Then join Dinner with a Difference, an evening of delicious food, delightful fun and diverting facts in the company of two scientists and a chef.

**VENUE:** No. 8 Thorpe Road

**COST:** £40

**AGE:** 18+

**BOOK:** [tinyurl.com/DWAD19book](http://tinyurl.com/DWAD19book)



**DR JANE GOODALL DBE**  
**REASONS FOR HOPE**  
IN CONVERSATION WITH  
PROF BEN GARROD

**THU 24 OCT**  
7pm–8.15pm

See p4.

**STARGAZING**  
WITH MARK THOMPSON

**THU 24 OCT**  
7.30pm–9.30pm



Beginning in Burnham Deepdale, walk a short 1¼ miles out along a section of the Norfolk Coast Path to meet astronomer, TV presenter and Norwich Science Festival patron, Mark Thompson, for some stargazing and a fascinating talk. This guided walk will follow the same route back and finish at Deepdale Cafe – the cafe will be open to serve hot drinks and snacks afterwards. Walk suitable for most levels of fitness. In association with Norfolk Trails.

**VENUE:** Deepdale

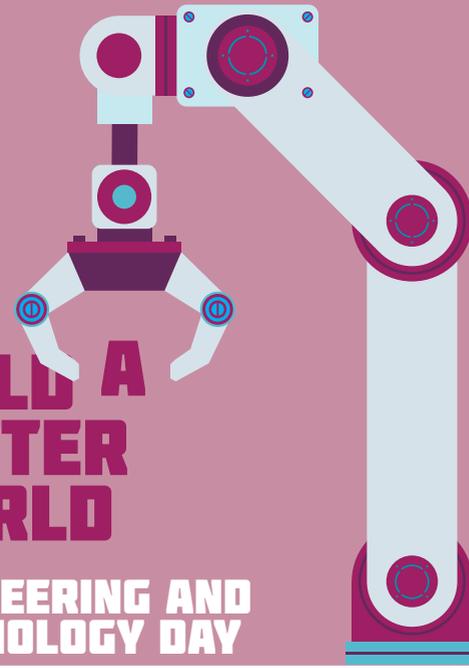
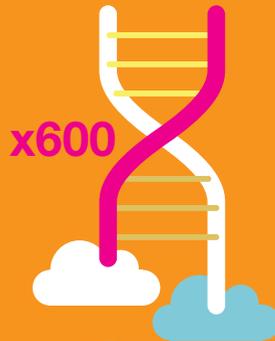
Backpackers and Camping

**COST:** Free, booking required

**AGE:** 10+

**BOOK:** [visitnorfolk.co.uk/wcf](http://visitnorfolk.co.uk/wcf)

**DID YOU KNOW?**  
YOUR DNA COULD  
STRETCH FROM THE  
EARTH TO THE SUN  
AND BACK 600 TIMES



**BUILD A  
BETTER  
WORLD**

**ENGINEERING AND  
TECHNOLOGY DAY**

**FRI 25 OCT**  
10am–4pm

**THE EXPLORIUM!**



Sponsored by

**UCC VATTENFALL**

University Technical  
College Norfolk

Get hands-on with engineering and technology in our Explorium. Explore innovation's role in offshore wind energy with Vattenfall. Take part in the Greenpower kit car pit stop challenge. See how robots and will be used in future farming. Try out Anglian Water's virtual reality headsets. Play maths games, build LEGO® bridges and have fun learning with Hethel Innovation, UEA, the Earham Institute, EDF Energy, Learning Resources, Greenpower Education Trust and others.

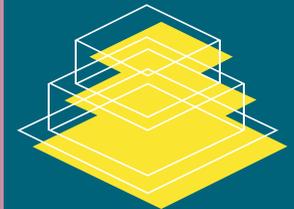
**VENUE:** The Forum's Explorium

**COST:** Free, drop-in

**AGE:** All ages



VISIT [NORWICHSCIENCEFESTIVAL.CO.UK](http://NORWICHSCIENCEFESTIVAL.CO.UK)



**GALLERY  
STAGE**

**FRI 25 OCT**

Pop into the Gallery for free, drop-in talks on a broad range of subjects including internet privacy, artificial intelligence and genomic technologies. First come, first served.

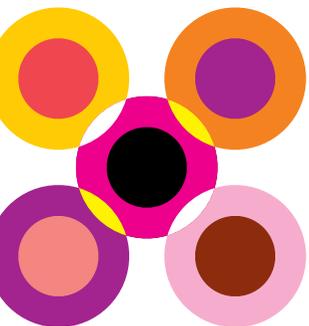
11am–11.45am  
The Advantages of  
Being a Disabled Scientist

12pm–12.30pm  
The Human Mosaic

1pm–1.45pm  
Internet Privacy: Why it's Hard  
to Protect and Why it Matters

2.15pm–2.45pm  
Artificial Intelligence:  
Hype or the Real Deal?

**VENUE:** The Forum's Gallery  
**COST:** Free, drop-in  
**INFO:**  
[norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)





**FAMILY EVENT**

**FLIGHTS OF FANCY**

**FRI 25 OCT**  
10am–4pm, every 20 mins

Fancy finding fun flight facts and soaring science snippets? From the team that brought you CheMystery Breakout at last year's Festival comes Flights of Fancy, a collection of hands-on activities exploring the science behind flight and flying. Where will your flight of fancy take you?

**VENUE:** Outside The Forum  
**COST:** Free, booking recommended  
**AGE:** 10+  
**BOOK:**  
norwichsciencefestival.co.uk



**FAMILY EVENT**

**WHEELS ON THE BUS**

**FRI 25 OCT**  
10.15am–11am

We jump on the bus and go for a ride with our babies to somewhere exciting. But will the journey be straightforward? Will the ducks in the road, the crying babies, and even a broken down bus stop us getting to our destination? A singing adventure and role-playing session with a happy ending.

**VENUE:** Millennium Library, Vernon Castle Room  
**COST:** £5.50 per child  
**AGE:** 2–4  
**BOOK:**  
norwichsciencefestival.co.uk

LITTLE ★  
PEOPLE'S  
DRAMA



**RAF MARHAM CONSTRUCTION CHALLENGE**

**FAMILY EVENT**

**FRI 25 OCT**  
10am–11am,  
11.30am–12.30pm,  
1.30pm–2.30pm, 3pm–4pm

**WORK SHOP**

Can you and your team build the best structure out of giant Meccano? RAF Marham will set the construction challenge, and various constraints to keep you on your toes, but how will you fare? Put your engineering skills to the test in this fun, but informative, hands-on workshop.

**VENUE:** UTCN  
**COST:** Free, booking required  
**AGE:** 10+  
**BOOK:**  
norwichsciencefestival.co.uk



**MADLAB SOLDERING WORKSHOPS**

**FAMILY EVENT**

**FRI 25 OCT**  
10am–11am,  
11.30am–12.30pm,  
1.30pm–2.30pm, 3pm–4pm

**WORK SHOP**

Try your hand at soldering, find out how electronics work and even make a buzzing puzzle to baffle your mates in our electronics workshop. MadLab is a unique, hands-on electronics workshop for children and adults.

**VENUE:** UTCN  
**COST:** £6 per participant  
**AGE:** 5+  
**BOOK:**  
norwichsciencefestival.co.uk



**ROBOT CODING**

**FAMILY EVENT**

**FRI 25 OCT**  
11.30am–12.30pm,  
1.30pm–2.30pm,  
3pm–4pm  
Relaxed session:  
10am–11am

**WORK SHOP**



Create a robot or two or three! Programme bots to obey your commands! Code a robot's path through an assault course and more. Plus a relaxed session at 10am for children with autism or Asperger's and their families.

**VENUE:** UTCN  
**COST:** £6 per participant  
**AGE:** 7+  
**BOOK:**  
norwichsciencefestival.co.uk



**BRICKOLOGISTS STEM LEGO WORKSHOPS**

**FAMILY EVENT**

**FRI 25 OCT**  
10am–11am,  
11.30am–12.30pm,  
1.30pm–2.30pm, 3pm–4pm

**WORK SHOP**

Build, play and learn with LEGO®! Have a go at making a motorised LEGO® model such as a ferris wheel. Follow the instructions and use your skills to add to the structure using your own imagination. Are you up to the Brickologists' challenge?!

**VENUE:** UTCN  
**COST:** £6 per participant  
**AGE:** 6+  
**BOOK:**  
norwichsciencefestival.co.uk



**BUILDING BRICK SATELLITES**

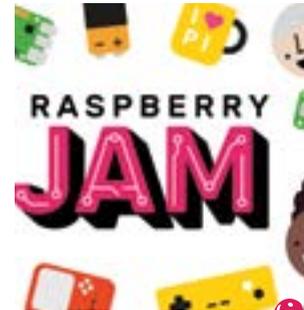
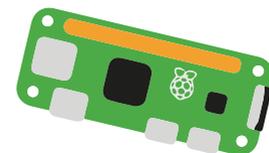
**FAMILY EVENT**

**FRI 25 OCT**  
10am–11am,  
11.30am–12.30pm,  
1.30pm–2.30pm, 3pm–4pm

**WORK SHOP**

Learn how real satellites are designed and built in this hands-on workshop! Using custom LEGO® bricks, design and build your own satellite based on the rules and technical constraints real spacecraft designers have to follow.

**VENUE:** Sir Isaac Newton Sixth Form  
**COST:** £8 per participant  
**AGE:** 6+  
**BOOK:**  
norwichsciencefestival.co.uk



**RASPBERRY PI JAMWICH**

**FAMILY EVENT**

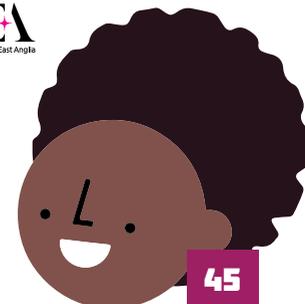
**FRI 25 OCT**  
10.30am–11.15am,  
11.45am–12.30pm,  
1.30pm–2.15pm

**WORK SHOP**

Try your hand at jamming with a Raspberry Pi with the team from UEA! Raspberry Pis are small, affordable computers, just right for project building, DIY projects and learning to code.

10.30am–11.15am:  
Lights and sounds – age 7+  
11.45am–12.30pm: Minecraft, music and make – age 7+  
1.30pm–2.15pm:  
Jam to your taste – age 15+

**VENUE:** Sir Isaac Newton Sixth Form  
**COST:** Free, booking required  
**AGE:** See above  
**BOOK:**  
norwichsciencefestival.co.uk





**THE GARAGE PRESENTS COLLISIONS**

**FRI 25 OCT**  
11am–11.30pm

Supported by  

 Supported using public funding by  
**ARTS COUNCIL ENGLAND**

The Universe – how can we comprehend this great expanse of space? This work-in-progress dance performance explores the vastness of our cosmos and considers our little blue and green rock within it. From the individual looking at the stars in the night's sky through to images of objects on the edges of our Solar System, how has mythology and science informed the way we consider everything outside our atmosphere?

**VENUE:** The Garage  
**COST:** £5  
**AGE:** 12+  
**BOOK:** thegarage.org.uk / 01603 283382



**AUTOMATICALLY ANIMATING FACES**

**FRI 25 OCT**  
11am–12pm

Discover how machine learning can be used to model the way that faces move during speech. In this talk, UEA's Dr Sarah Taylor will explain how these techniques enable us to automatically animate both computer generated characters and the faces of real humans in real video. You will learn that seeing is not always believing!

**VENUE:** The Forum, Auditorium  
**COST:** Free, booking required  
**AGE:** 12+  
**BOOK:** [norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)



**TIME MACHINE**

**FRI 25 OCT**  
11.30am–12.15pm

Step on board the time machine in this fun role-playing drama session! When we push the button, where will we end up in time? And what will we see?!

**VENUE:** Millennium Library, Vernon Castle Room  
**COST:** £5.50 per child  
**AGE:** 4–6  
**BOOK:** [norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)

**LITTLE PEOPLE'S DRAMA**



**ENTERTAINING SCIENCE - CIRCUS SKILLS SHOW WITH DR KEN FARQUHAR**

**FRI 25 OCT**  
1pm–2pm

Roll up, roll up it's time for some 'circus science'! Watch Dr Ken explore the science behind skilful tricks and seemingly impossible stunts. Discover why jugglers love gravity, how clowns use forces like a Jedi and why unicyclists keep moving to stay still. It's science but not as you know it!

**VENUE:** The Forum, Auditorium  
**COST:** £5 per person  
**AGE:** All ages  
**BOOK:** [norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)

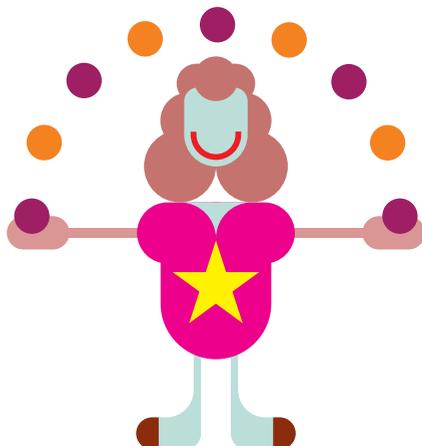


Photo: CERN

**ATLAS EXPERIMENT AT CERN VIRTUAL VISIT**

**FRI 25 OCT**  
3pm–4pm

Take a virtual tour around the ATLAS Experiment at CERN – one of the largest, most complex scientific instruments ever constructed. It is designed to explore the inner universe, advancing our understanding of the basic building blocks and fundamental forces of nature.

Learn more about the experiment, with an ATLAS physicist, receive a tour of the control room and get answers to your questions.  
**VENUE:** The Forum, Auditorium  
**COST:** Free, booking required  
**AGE:** 12+  
**BOOK:** [norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)



**STOP-MOTION FILM-MAKING**

**FRI 25 OCT**  
3pm–4.30pm

Make your own amazing LEGO® film, using stop-motion animation, in this workshop from Norfolk Library and Information Service. No experience needed – beginners welcome.

**VENUE:** Earlham Library  
**COST:** Free, booking required  
**AGE:** 8–11  
**BOOK:** 01603 454338 / [earlham.lib@norfolk.gov.uk](mailto:earlham.lib@norfolk.gov.uk)

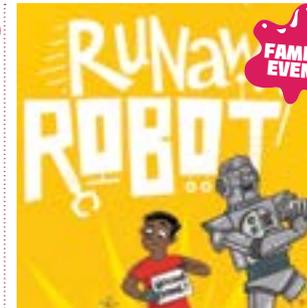


**STOP-MOTION FILM-MAKING**

**FRI 25 OCT**  
3pm–4.30pm

Make your own amazing LEGO® film, using stop-motion animation, in this workshop from Norfolk Library and Information Service. No experience needed – beginners welcome.

**VENUE:** Plumstead Road Library  
**COST:** Free, booking required  
**AGE:** 8–11  
**BOOK:** [plumstead.road.lib@norfolk.gov.uk](http://plumstead.road.lib@norfolk.gov.uk) / 01603 433455

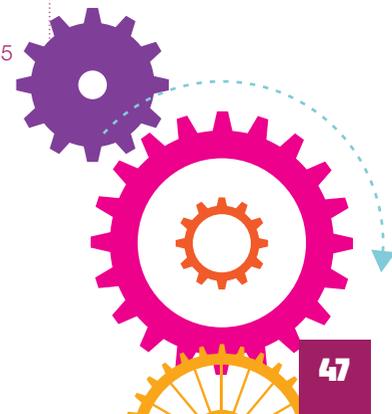


**RUNAWAY ROBOT WITH FRANK COTTRELL-BOYCE**

**FRI 25 OCT**  
4pm–5pm

What would you do with a robot best friend? Bestselling award-winning author, Frank Cottrell-Boyce will introduce you to Alfie, a boy who loses his hand in an accident and is very lonely until he meets Eric, a one-legged, very polite robot, in his brand new book *Runaway Robot*. With booksigning.

**VENUE:** The Forum, Gallery  
**COST:** £4 per person  
**AGE:** 9+  
**BOOK:** [norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)



**THE FUTURE OF HUMAN SPACEFLIGHT**

**FRI 25 OCT**  
5pm-6pm

See p6.

**HEALTH AND WELLBEING CAFE**

**FRI 25 OCT**  
7pm-9pm

This year's Norwich Science Festival will host the inaugural Health and Wellbeing Cafe, in which we explore the latest science in human health with a focus on current research from UEA and the Norwich Research Park.

To launch the Cafe, Prof Dylan Edwards (Pro-Vice Chancellor for the Faculty of Medicine and Health Sciences) and Dr Sarah Hanson (Lecturer in Health Sciences) will discuss the latest in cancer research at UEA. The speakers are there to be questioned and talk about their work at all levels. Enjoy a drink and dive into the discussion! Everyone is welcome.

**VENUE:** The Murderers  
**COST:** £3  
**AGE:** 18+  
**BOOK:** [store.uea.ac.uk](http://store.uea.ac.uk)

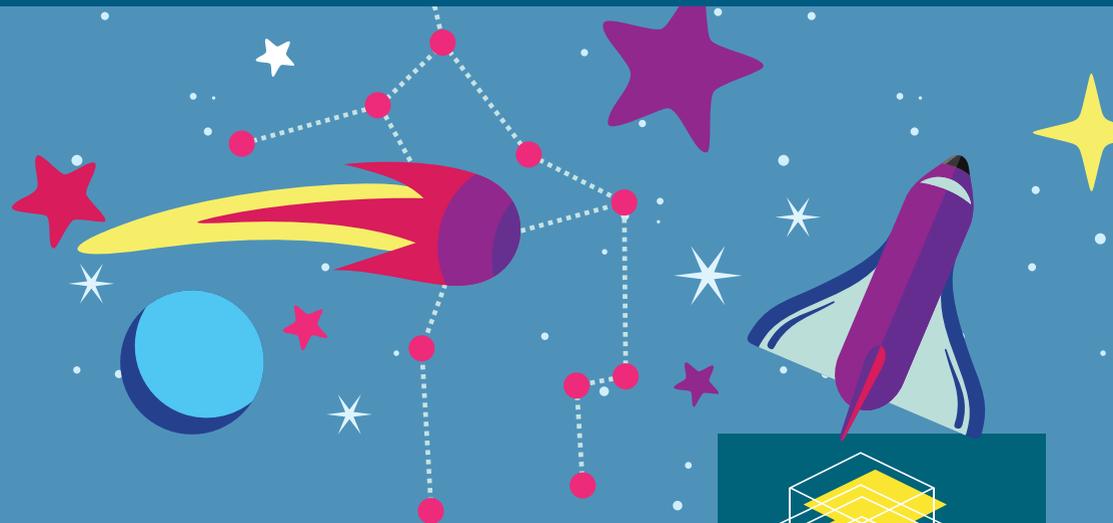
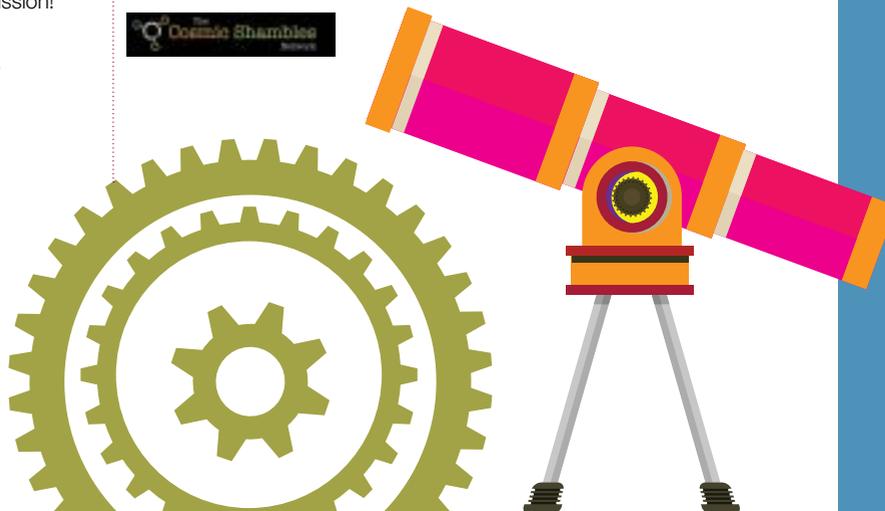


**THE COSMIC SHAMBLES NETWORK IN ASSOCIATION WITH FOOTPRINT THEATRE PRESENTS SIGNALS + PROF LUCIE GREEN**

**FRI 25 OCT**  
7pm-8.35pm

Signals is a comedy play that follows two astronomers and their hunt for alien life. A show about searching for meaning in a universe we don't understand. What if we're alone? What if we're not? Followed by a talk on the science within Signals by *Stargazing Live's* Prof Lucie Green.

**VENUE:** Norwich Puppet Theatre  
**COST:** £8  
**AGE:** 14+  
**BOOK:** [norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)



**ATOMS, STARS AND SPACE**

**PHYSICS FEST & ASTRONOMY DAY**



**SAT 26 OCT**  
10am-4pm

**THE EXPLORIUM!**

In partnership with

**IOP Institute of Physics**

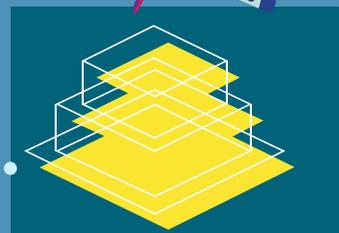
A day dedicated to everything from the structure of atoms to the vastness of the Universe. Get hands-on with physics and astronomy – measure the speed of light for yourself, discover the joys of astronomy and how to get started, and see some astro images. Activities and stands from the Institute of Physics, DASH Astro, Orwell Astronomical Society, Norwich Astronomical Society, Shaun Reynolds, Greenpeace and more.

**VENUE:** The Forum's Explorium  
**COST:** Free, drop-in  
**AGE:** All ages



**IOP Institute of Physics** **GREENPEACE**

VISIT [NORWICHSCIENCEFESTIVAL.CO.UK](http://NORWICHSCIENCEFESTIVAL.CO.UK)



**GALLERY STAGE**

**SAT 26 OCT**

Join us in the Gallery for free, drop-in talks on the solar system, the physics of volcanoes, and a tour of Fermilab. First come, first served.

10.30am-11.30am

The Sun's Family:  
A Tour of our Solar System

1.30pm-2.30pm  
Small Island, Big Volcano (And the People Who Roared Back)

3pm-4pm  
Amazing Neutrinos

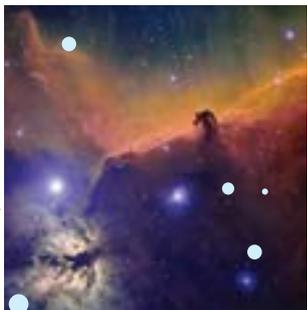
**VENUE:** The Forum's Gallery

**COST:** Free, drop-in

**INFO:**  
[norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)



Photo: Shaun Reynolds



**STARLIFE: THE TEN BILLION YEAR JOURNEY**

**SAT 26 OCT**  
10.30am–11.30am

Learn how a star is born, lives and finally dies – all with the aid of Shaun Reynolds’ fabulous photographs of astronomical objects, which will be familiar to anyone who has seen them on show.

**VENUE:** The Forum, Auditorium  
**COST:** Free, booking required  
**AGE:** 10+  
**BOOK:**  
norwichsciencefestival.co.uk

**ROCKETS - MOONSHOT!**



**SAT 26 OCT**  
10am–11am /  
11.30am–12.30pm  
1.30pm–2.30pm / 3pm–4pm



Become a rocket scientist in less than an hour! Learn from a real-life rocket designer how rockets fly in this exciting hands-on workshop! Design and build your own stomp-rocket, refine its aerodynamics and accuracy, then try and land your rocket on our giant indoor moon!

**VENUE:** Sir Isaac Newton Sixth Form  
**COST:** £5 per participant  
**AGE:** 5+  
**BOOK:**  
norwichsciencefestival.co.uk



**MAN ON THE MOON**



**SAT 26 OCT**  
10.30am–11.15am



In this role-playing session, we take a trip in our space rocket to help the man on the Moon clean it. But when we hear a strange noise, what will we discover and where will our adventure take us?

**VENUE:** Millennium Library, Vernon Castle Room  
**COST:** £5.50 per child  
**AGE:** 2–4  
**BOOK:**  
norwichsciencefestival.co.uk

LITTLE ★  
PEOPLE'S  
DRAMA

**THERE'S NO PLACE LIKE... READING FOR FAMILIES**



**SAT 26 OCT**  
11am–12pm

Curiosity was built for a very important purpose – to explore Mars. But it can get a bit boring exploring on your own, so Curiosity goes looking for Opportunity. Join UEA alumna Greta Mitchell for a very special picture book reading about space and loneliness for kids and adults alike.

**VENUE:** Millennium Library, Ground Floor  
**COST:** Free, booking required  
**AGE:** 3+  
**BOOK:**  
norwichsciencefestival.co.uk

**SPACE DOGS**

**SAT 26 OCT**  
12pm–1pm

Long before humans set foot on the Moon, dogs left their paw prints on the cosmos. Canine cosmonauts like Belka and Strelka were hailed as the first Soviet superstars. Space journalist and broadcaster Richard Hollingham tells the story of Soviet space dogs and the debt every astronaut – from Yuri Gagarin to Tim Peake – owes them.

**VENUE:** The Forum, Auditorium  
**COST:** £6  
**AGE:** 10+  
**BOOK:**  
norwichsciencefestival.co.uk

**FORGOTTEN WOMEN IN SCIENCE**

**SAT 26 OCT**  
12pm–1pm

Join this inspiring talk about incredible women in science, the movement to provide overdue recognition of their achievements and contributions to science, and how you can make a difference.

**VENUE:** The Forum, Gallery  
**COST:** Free, booking required  
**AGE:** 10+  
**BOOK:**  
norwichsciencefestival.co.uk



**MATHS MADNESS WITH KYLE EVANS**



**SAT 26 OCT**  
1.30pm–2.30pm

A show with stacks of audience participation and some mind-bending mathematical concepts, all delivered in an accessible fashion for children and their parents. Whether you're a mathsphile or a mathsphobe, this show brings a unique combination of joyous number-play and family entertainment.

**VENUE:** The Forum, Auditorium  
**COST:** £4 per person  
**AGE:** 8+  
**BOOK:**  
norwichsciencefestival.co.uk

**FORGOTTEN WOMEN IN SCIENCE WIKIPEDIA EDITATHON**

**SAT 26 OCT**  
2pm–5pm

A supported Wikipedia editing workshop where attendees create a Wikipedia page for a forgotten woman in science. Attendees will need to bring their own laptop.

**VENUE:** Millennium Library, Vernon Castle Room  
**COST:** Free, booking required  
**AGE:** 15+  
**BOOK:**  
norwichsciencefestival.co.uk

**RADIO BLIPS AND BLASTS PULSARS AND OUR UNDERSTANDING OF THE COSMOS**

**SAT 26 OCT**  
3.30pm–4.30pm

Since their discovery in 1967, observations of pulsars – the incredibly dense, highly magnetic, rapidly rotating remnants of supernova explosions – have been used to increase our understanding in many areas of fundamental physics and astrophysics. In this talk, UEA's Dr Robert Ferdman will discuss the state of astrophysics leading up to and including this momentous discovery.

**VENUE:** The Forum, Auditorium  
**COST:** Free, booking required  
**AGE:** 12+  
**BOOK:**  
norwichsciencefestival.co.uk



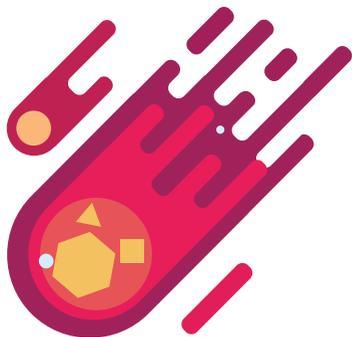
Photo: Steve Ullathorne

**INTRODUCTION TO THE UNIVERSE: SLEEP NOT ESSENTIAL! WITH MARK THOMPSON**

**SAT 26 OCT**  
5pm–6pm

Join TV astronomer and author Mark Thompson in this introduction to the Universe, with one caveat – Mark has had no sleep for two days... so anything could happen! In a warm-up to his 2020 record-breaking attempt to lecture for five days straight, Mark will expound the wonders of the Universe, from our nearest satellite the Moon, through our Solar System and the Milky Way Galaxy, to mysterious black holes.

**VENUE:** The Forum, Auditorium  
**COST:** £5  
**AGE:** 12+  
**BOOK:**  
norwichsciencefestival.co.uk





**E3I PANEL: SCIENCE, SOCIETY AND OUR PLANET**

**SAT 26 OCT**  
6.30pm-8pm

At this interactive event, a panel of scientists from the Norwich Research Park will take your questions on some of the biggest challenges facing our society today: antibiotic resistance, food security and the climate crisis. What are these problems? What causes them? How can they be addressed?

**VENUE:** The Forum, Gallery  
**COST:** Free, booking required  
**AGE:** 15+  
**BOOK:**  
[norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)



**THE COSMIC SHAMBLES PRESENTS PROF CHRIS LINTOTT + UNIVERSE OF MUSIC WITH STEVE PRETTY**

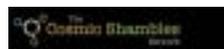
**SAT 26 OCT**  
7pm-8.35pm

Sponsored by



The *Sky at Night's* Prof Chris Lintott presents The Cosmos, a fascinating account of the Zooniverse project, before being joined by acclaimed musician Steve Pretty for a special version of their acclaimed Universe of Music show, with tales of the sounds and the stars. A unique night of space!

**VENUE:** The Octagon Chapel  
**COST:** £8  
**AGE:** 12+  
**BOOK:**  
[norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)



**BALLOON DEBATE: CAN VEGANISM SAVE THE PLANET?**

**SUN 27 OCT**  
7pm-9pm

A fun, fierce and fascinating evening of debate on one of the inflammatory questions of our time: will veganism save the planet? Six players are floating above Norwich in a punctured hot air balloon, which is sinking fast. By sheer wit, eloquence and mastery of the chosen topic, they must persuade you, the mob, that they should remain in the balloon and not be ejected to save height. Who will survive? The answer is in your hands. So, pay attention, listen hard and be on guard for added jeopardy.

**VENUE:** Norwich Arts Centre  
**COST:** Pay What You Can Afford £4 concessions / £6 / £9 / £12  
**AGE:** 11+  
**BOOK:** 01603 660352 / [norwichartscentre.co.uk](http://norwichartscentre.co.uk)



**SCI COMMS EAST CONFERENCE**

**SAT 12 OCT**  
9.30am-5pm

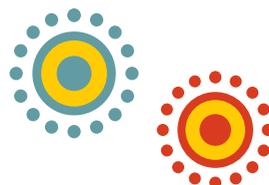
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An exciting opportunity for early career scientists and science communicators to join experts in this special day of talks, workshops and networking. Join communications experts as they share their knowledge of effective science communication, from using graphics to sharing your research, to networking tips and policy pointers, this conference is perfect for anyone wishing to improve their science communication skills.

**VENUE:** UEA, The Enterprise Centre  
**COST:** £15, free for Norwich Research Park staff and students  
**AGE:** 16+  
**BOOK:**  
[norwichsciencefestival.co.uk](http://norwichsciencefestival.co.uk)



**LEARNING PROGRAMME**

**MON 14-THU 17 OCT**

Join us to explore the world of minibeasts, blast off into space, discover the science of flight and much more, in our dedicated Learning Programme to inspire the next generation of scientists.

[norwichsciencefestival.co.uk/learning](http://norwichsciencefestival.co.uk/learning)



**YOUNG COMMUNICATIONS TEAM**

Each year we offer the chance for young people to get involved with science communication at Norwich Science Festival. This year we're teaming up with the Young Norfolk Arts Trust to offer training in science communication and recording and evaluation of NSF events. The Young Comms Team get to attend NSF events and report on talks and shows, through blogs, interviews, filming and photography.

[norwichsciencefestival.co.uk/get-involved](http://norwichsciencefestival.co.uk/get-involved)



**YOUTH STEM AWARDS**

Every Festival event counts towards a Youth STEM Award, an achievement-based award for young people to further their passion, knowledge and skills in STEM (Science, Technology, Engineering, Maths and Medicine). Sign up to YSA Juniors (KS2/KS3), Bronze or Silver (ages 13-19), or challenge yourself to go for Gold (ages 16-19).

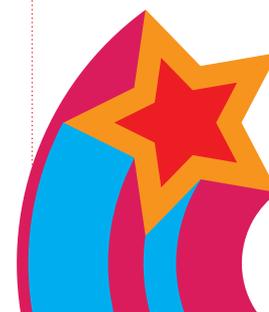
[ysawards.co.uk](http://ysawards.co.uk)



**CHILDREN'S UNIVERSITY**

Norwich Science Festival supports Norfolk Children's University to provide memorable and high-quality learning experiences designed to inspire and raise aspirations, ambitions and achievements. The Children's University provides all children aged 5-14 years with the opportunity to take part in exciting and creative learning activities outside of the normal school day. Bring your passport to the Festival to get it stamped!

[www.norfolk.gov.uk/childrensuniversity](http://www.norfolk.gov.uk/childrensuniversity)



## VENUES

Norwich Science Festival events take place at The Forum, in central Norwich, and in venues across the city.

For full venue information, see [norwichsciencefestival.co.uk/plan-your-visit](http://norwichsciencefestival.co.uk/plan-your-visit). See map on p28-29.

## PLAN YOUR VISIT

Norwich is easy to reach via good public transport links. To plan your visit go to [norwichsciencefestival.co.uk/plan-your-visit](http://norwichsciencefestival.co.uk/plan-your-visit).

## PARK AT THE FORUM

Convenient parking for most city centre venues. Parking at The Forum helps support our year round programme of free events – including Norwich Science Festival. See [theforumnorwich.co.uk/parking](http://theforumnorwich.co.uk/parking).

## ABOUT THE FORUM

The iconic Forum building is managed by The Forum Trust, an independent, self-financing charitable organisation. The Forum's project purpose encompasses lifelong learning, and includes celebrating the region's history, heritage and culture. In addition to Norwich Science Festival, it also delivers and supports Norfolk Makers' Festival, Norwich Games Festival, Run Norwich, Heritage Open Days and more. Find out more at [theforumnorwich.co.uk](http://theforumnorwich.co.uk).

## COMING UP AT THE FORUM



8-23 FEB 2020

Sixteen days of inspiring exhibitions, creative activities, workshops, demonstrations, talks and crafty conversation at The Forum, Norwich and at fringe events around the county.



25-31 MAY 2020

A week of gaming fun, learning and creativity, with talks, workshops, demos, and indie, mainstream and retro games.



SUMMER 2020

Step back in time with dinosaurs in LEGO® bricks, from the creators of the Brick Wonders exhibition.

Brochure designed by:



### The NSF team:

The Forum: Natalie Bailey, Jan Robertson, Jayne Evans, Sophie Conroy, James Coates, Sam Rowe, Megan Thrift, Denise Goldsmith, plus support from Forum staff and events team.

UEA: Tanner Barnes and Rachel Watkins



[www.carbonbalancedpaper.com](http://www.carbonbalancedpaper.com)  
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## PARTNERS/SPONSORS/FUNDERS

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The Forum would like to say a huge thank you to all our partners, sponsors and funders – without their valued support the Festival would not be possible.

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# NORWICH SCIENCE FESTIVAL

18-26 OCTOBER 2019



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